Faculty of Pharmacy **Assiut University**

THE PROGRAMME SPECIFICATION FOR UNDER GRADUATE

Bachelor of Pharmaceutical Sciences

OCTOBER ٢٠١٣

Dean of Faculty

Prof. Dr. Zedan Z. Ibrahiem

QAU Director

Prof. Dr. Mahmoud M. Sheha

Setting Committee

(Assiut University, Faculty of Pharmacy)

Prof. Dr.Tarek A. Mohamed: Vice-dean for student affairs

Prof. E. Dr. Adel F. Youssef: Dept of Medicinal Chemistry

Prof. E. Dr. Nadia Mahfouz: Dept of Medicinal Chemistry

Prof. E. Dr. Safaa A. El-Moghazy: Dept of Pharmacognosy

Dr. Iman S. A. Khallaf: Dept of Pharmacognosy

Revision Committee

Prof. Dr. Zedan Z. Ibrahiem

Prof. Dr. Mahmoud M. Sheha

Internal Evaluators

Prof. E. Dr. Mohammed. E. Alshanawany: Dep Pharmacognosy

Prof. E. Dr. Tahany H. Alfaham: Dept Pharmaceutics

External Evaluators

Prof. Dr. Mohamed B. Alashmawy: Dept of Medicinal Chemistry, Faculty of Pharmacy, El-Mansoura University

Prof. Dr. Norhan Fanaky: Dept of Microbiology, Faculty of Pharmacy, Alexandria University

Contents

Introduction

A Programme Specifications document contains summary information about the main features of an existing academic programme or a programme being developed. The document provides the following.

a. Basic and standardized information about the programme

b. Programme aims/goals and the intended learning outcomes of the programme (programme objectives) in terms of knowledge, skills and values/attitudes

c. The methodologies and strategies by which the programme achieves (or intends to achieve) its stated outcomes (teaching/learning and methodologies strategies)

d. The ways/means by which students are required to demonstrate that they have achieved the intended learning outcomes of the programme (assessment).

Programme Specification (PS) is quality assurance system as follows:

- It informs students about their programme, intended programme outcomes, teaching/learning methodologies and assessment. Students can use the PS as a guide before registering for a given programme based on their career plans. Students can use the PS during their programme to track for themselves if in their judgment their learning experiences are consistent with the PS. They can use the PS after completing the programme to again judge for themselves if their composite learning experiences in the programme are consistent with the PS.

- It informs institutions, faculties, departments and individual lecturers about programme aims, Intended learning Outcomes (ILOs) of each programme, the methods being used to achieve these outcomes and the assessments conducted to demonstrate that students have indeed achieved such outcomes. The PS can be used to guide programme monitoring, and internal programme review

(with the participation of existing students, faculty, employers and alumni). Individual faculty members can use the PS as an important reference point in planning, delivering and assessing teaching/learning and in writing or reviewing syllabi.

- It informs employers about the knowledge, skills and values/attributes that programme graduates should have.
- It informs external reviewers about the aims and intended outcomes of the programme.
- It informs the general public about the aims and intended outcomes of a programme thereby providing a high degree of accountability.

Specification of the Educational Programme

University : Assiut

Faculty : Pharmacy

A- Basic Information:

١-Programme title: Bachelor of Pharmaceutical Sciences

٢-Programme type: Single [√] **Double** [√] **Multiple** [ ]

٣-Departments responsible

A- Departments affiliated to Faculty of Pharmacy:

Pharmaceutics, Pharmacognosy, Medicinal Chemistry, Pharmaceutical Organic Chemistry, Pharmaceutical Analytical Chemistry, Industrial Pharmacy and Clinical Pharmacy

B- Departments affiliated to Faculty of Medicine:

Microbiology and Immunology, Pharmacology, Medical Biochemistry, Anatomy, Histology, Physiology, Pathology, Public Health and Parasitology

C- Departments affiliated to Faculty of Science:

Botany, Zoology, Physics, Chemistry and Mathematics

D-Department affiliated to Faculty of Arts:

English language

E- Department affiliated to Faculty of Education:
Psychology

F- Department affiliated to Faculty of Commerce:
Accounting and Auditing

G- Department affiliated to Faculty of Law:
General Law

٤- Coordinator:

Prof. Dr. Adel F. Youssef (Department of Medicinal Chemistry).

٥. External Evaluator(s):

External reviewer is a vital component of overall QA unit activities that should be performed through suitably appointed qualified and experienced people. The external evaluator is concerned with the adequacy of the written exam and fulfillment of ILO's and other points as indicated by the attached sample (Attachments).

Prof. Dr. Mohamed B. Alashmawy: Department of Medicinal Chemistry, Faculty of Pharmacy, El-Mansoura University

Prof. Dr. Norhan Fanaky: Department of Microbiology, Faculty of Pharmacy, Alexandria University

٦. Year of Operation: Academic year, ٢٠١٢/ ٢٠١٣.

B- Professional Information:

١-Programme Aims

The Faculty of Pharmacy, Assiut University for undergraduate programme is a five years pharmacy education awarding a Bachelor Degree in Pharmaceutical Sciences. The educational programme of the faculty aims to provide students with basic information background, specialized knowledge to be translated to appropriate professional skills. The educational programme includes basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences. This programme provides the students with the knowledge, skills and abilities needed to practice the pharmacy profession effectively in establishments including community pharmacies, hospitals, academic institutions, research centers and pharmaceutical industry.

The educational programme of the Faculty of Pharmacy, Assuit University aims to:

١- Adopt curriculum intended to graduate general practitioner pharmacist.

٢- Provide graduates with a structural learning programme that will help them to apply the knowledge and skills in the daily practice.

٣- Foster student's abilities to communicate effectively solve problems and make rational, independent judgments based on scientific reasoning about drug development and drug control.

٤- Provide knowledge in the clinical, behavioral and basic pharmaceutical sciences for the benefit of society.

٥- Provide collaboration with other health professional organizations to achieve its goal of excellence in service to community.

٦- Develop certain skills that help in performing various qualitative and quantitative analytical techniques; full criteria of GLP and GMP to assure the quality of raw materials, procedures and pharmaceutical products.

٧- Coach students to plan, design and conduct research using appropriate methodologies.

٨- Help students to acquire the necessary knowledge and skills in areas related to the isolation, synthesis, design, formulation, production, quality control, promotion and marketing of pharmaceutical products and management of pharmacy establishments.

٩- Transfer skills of data mining and application of IT to optimize benefits of medicine outcomes.

١٠- Strengthen compliance and binding legal, ethical and professional rules.

١١- Apply principles of quality assurance for pharmaceutical and natural products.

١٢- Offer elective courses which provide the students with the recent information about the herbal preparations, nutritional supplements, liposomes and nanoparticles which find their applications in recent drug formulations.

Achievement of programme aims

Prof. Dr. Mohamed B. Alashmawy

Department of Medicinal Chemistry, Faculty of Pharmacy, El-Mansoura University

Prof. Dr. Norhan Fanaky

Department of Microbiology, Faculty of Pharmacy, Alexandria University

II- Attributes of the Graduates

Pharmacy graduates practice their profession mainly at community pharmacies, hospital pharmacies, drugstores, pharmaceutical industry, research centers and in academia relatively. Limited number work in other sectors that might benefit their knowledge e.g. forensic and analytical labs, drug and poison information centers. Marketing is growing field for recruitment of pharmacists.

Graduates should demonstrate comprehensive knowledge, clear understanding and outstanding skills as follows:

١- Be able to deal and handle chemicals, natural and pharmaceutical products effectively following coded requirements of pharmacy law and legislations.

٢- Formulate, prepare and dispense pharmaceutical products from different sources.

٣- Analyze quantitatively and qualitatively raw materials, pharmaceutical products and biological samples and applying principles of quality control and quality assurance for natural and pharmaceutical products.

٤- Perform according to GLP and GPMP techniques and fulfill criteria to assure the quality of raw materials, procedures and pharmaceutical products.

٥- Comprehend principles of pathophysiology of diseases and participate with other health care professionals in improving health care services using evidence-based data.

٦- Plan, design and conduct research using appropriate methodologies.

٧- Have an appreciation for the business aspects of the profession; also be capable to develop presentation, promotion, marketing, business administration, numeric and computation skills.

٨- Demonstrate capability of communication skills, time management, critical thinking, and problem solving, decision making and team working.

٩- Practice professional responsibilities in compliance with legal and ethical rules.

١٠- Upgrade professional and scientific knowledge and skills by conducting continuous self-learning approach.

١١- Keep attention to deal with expiry date and counterfeiting of drugs.

١٢- Able to work well with both managers and subordinates.

١٣- Present themselves in a professional prestigious manner.

١٤- Recognize disease prevention and process of infection as a part of pharmacist's role in public health.

١٥- Keen to perform at high moral at working place.

١٦- Educate patients and community about the proper and safe use of medications as well as risks of drug abuse, radiation and different xenobiotics.

١٧- Provide information about proper medications and medical devices as well as management of toxicities and medical emergencies.

١٨- Recruit knowledge skills, experience and values to fulfill his / her obligation to educate and train the next generation of pharmacists.

III. Intended Learning Outcomes (ILO'S)

IIIa- Knowledge and Understanding

By the end of the programme, graduates should demonstrate knowledge and understanding of the following outcomes:

a١. Fundamentals of basic sciences in the level that prepare the students to understand correctly, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy.

a٢. Basic understanding of physico-chemical properties of organic compounds including: thermodynamics, kinetics and assessment of chemical and physical stability including active ingredients and additives as well as biotechnology and radio labeled products.

a٣. The principles of various instruments used in different processes, drug formulation, packaging, storage, route of administration.

a٤. The basics of macro- and microscopical characters of different human tissues, parasites and medicinal plant organs. Detection of adulteration as well as, their proper collection, storage and marketing in addition to chemo-taxonomical classification of medicinal plants

a٥. The properties and chemistry of natural products. Basics of complementary and alternative medicine and their application in therapeutics in addition to principles of quality control of herbal products.

a٦. Chemistry of medicinal substances, their isolation, synthesis and reaction mechanisms, purification, identification, toxicity and application of different analytical techniques using GLP guidelines for their estimation either single or in dosage forms as well as structural activity relationship (SAR) and drug design.

a٧. The general principles of poisoning management, public health issues, relevant to community including sources and control of drug microbial contamination as well as sanitation, disinfection and sterilization methods.

a٨. Principles of normal and abnormal body functions in healthy and diseased states and understand correctly the biochemical pathways in human systems and in plants, healthy life style as well as general knowledge about molecular biology.

a٩. Basic principles of pharmacokinetics, pharmacotherapeutics biopharmaceutics and pharmacology including mechanisms of action,

therapeutic uses, misuse, abuse of medicines, adverse reactions, interactions and therapeutic drug monitoring.

a١٠. The etiology, epidemiology, laboratory diagnosis, treatment and clinical features of different diseases and their pharmacotherapeutic approaches.

a١١. The concept of drug toxicity and other xenobiotics including sources, identification, symptoms, management, control and first aid measures including fractures, wounds and poison management

a١٢. Different roots of drugs administration contemporary hospital pharmacy and services as IV. admixtures, total parenteral nutrition (TPN) and drug distribution system.

a١٣. Necessary knowledge concerning general manufacturing practice (GMP), quality assurance protocols in pharmaceutical industry, in addition to pharmaceutical technology applications and properties of different pharmaceutical dosage forms including liposome, nanoparticles and novel drug delivery systems

a١٤. Basic understanding of pharmaceutical calculations, different methods of biostatical analysis, and kinetics

a١٥. Principles of management, good communication and improvement of foreign languages

a١٦. The pharmacy laws, ethics and human rights, codes of practice in community and industry, its impact on relationship with patient and other healthcare professionals.

a١٧. Concepts and principles of clinical pharmacy practice, including maintenance of patient profiles, proper documentation and drug filing systems.

a١٨. Principles of drug promotion, sales and marketing, business administration, accounting and basis of pharmacoeconomics in pharmacy practice.

IIIb- Intellectual Skills

At the end of the programme, the students will be able to:

b١. Apply knowledge to prepare safe and effective medicines for individual patient use.

b٢. Correlate the relationship between human body organs of different systems, safe, effective and economical use of medicines.

b٣. Predict the methods of synthesis and properties of organic and inorganic compounds as medicinal agents and their relation to molecular structure by applying the principles of bio-informatics and computer aided tools in drug design.

b٤. Apply qualitative and quantitative analytical, microscopical and biological methods for quality control and assay of raw materials as well as pharmaceuticals and in biological media.

b٥. Solve problems of thermodynamics and finding the appropriate strategies for control of physical and/or chemical incompatibilities that may occur during drug dispensing.

b٦. Choose rationally the systems used for delivery and in formulation of biologically active molecules.

b٧. Exploitate information including biotechnology and pharmacoeconomic principles to propose approaches for monitoring and design of medicinal agents and effective pharmacotherapy

b٨. Assess reliable scientific data and published literature.

b٩. Adjust dose and regimen of medications.

b١٠. Apply pharmacological knowledge about different drugs to ensure proper selection of therapeutics and use of drugs in various disease conditions.

b١١. Select appropriate methods and equipments for extraction, isolation, purification, identification, analysis and formulation of biologically active ingredients from natural or synthetic origin.

b١٢. Evaluate different methods of infection control, pathogenesis and pathological changes to prevent infections and promote public health.

b١٣. Adopt guidelines in pharmacy practice as GLP, GSP, GCP and GPMP.

b١٤. Assess drug interactions and adverse drug reactions for the proper selection of drugs in various disease conditions

b١٥. Survey laboratory investigation, identify organs in presence of certain parasite and interpret the clinical and laboratory findings to define a proper diagnosis

IIIc- Professional and Practical Skills

At the end of the programme student will be able to:

c١. Compound, package, and dispense medicines in appropriate dosage forms accurately and safely

c٢. Handle different pharmaceutical instrumentations and laboratory procedures, for manufacture and analysis of biological samples and drugs either of herbal, animal or synthetic sources.

c٣. Undertake risk assessments concerning drug-drug, drug-herb interaction, adverse reaction, toxicity profile and incompatibilities in different pharmaceutical preparations.

c٤. Use properly the pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.

c٥. Have the ability to prescribe OTC medication and medicines based on understanding etiology of some diseases.

c٦. Acquire skills in drug marketing and distribution system. Efficiently discuss application of drug properties with the medical profession.

c٧. Handle properly chemicals in the lab and be aware of the rules of good laboratory practice (GLP) and other guide lines in pharmacy practice as GSP, GCP, GPMP, and GDP.

c٨. Monitor and control microbial growth, parasitic infections and carry out laboratory tests to identify infectious and non-infectious diseases. Also, control sterilization processes and aseptic procedures.

c٩. Extract, isolate, synthesize, identify, standardize and incorporate the medicines of different origins in isolated organs, formulate and suggest a complimentary and/or alternative medicine.

c١٠. Determine the toxicity profiles of different xenobiotics and detect poisons in biological specimens

c١١. Conduct research studies and analyze results.

c١٢. Employ proper documentation and drug filing system.

c١٣. Identify the structural features of human body organs, animal and plant and differentiate visually and microscopically their tissue elements.

c١٤. Evaluate drug abuse and adulteration relevant to their impact on social and public health.

c١٥. Advise patients and other health care professionals about safe and proper use of medicines

IIId- General and Transferable Skills

By the end of the programme the student should be able to:

d١. Apply information technology skills, including word processing, spreadsheet use, database use, archiving data and information retrieval through online computer searches, and internet communication.

d٢. Calculate doses and dosage regimens. Also, acquire skills in numeric, computation methods and application of biological statistics in different field of pharmacy.

d٣. Interact effectively with patients and the public health care professionals. Be able to Interpret and present pharmaceutical information either in written and oral styles.

d٤. Provide emergency first aids.

d٥. Retrieve and critically evaluate pharmaceutical and clinical information and clinical laboratory data.

d٦. Perform according to professional and moral ethical codes and approaches considering laws of human rights as well as legal and safety guidelines.

d٧. Demonstrate critical thinking, problem solving and decision making abilities in a variety of theoretical and practical situations.

d٨. Work effectively in a team in a variety of health care settings.

d٩. Provide good advice about balanced diet to promote the efficiency of medication and give hand in poisoning cases.

d١٠. Manage time effectively.

d١١. Develop financial, sales and market management skills.

IV- Academic Standards:

IVa-External Reference Standards:

National Academic Reference Standards (NARS/٢٠٠٩) were adopted.

١. *Attributes of the Graduates*

Pharmacy graduates work in a multidisciplinary profession and must acquire the necessary attributes in various pharmacy aspects for pursuing their career. They should demonstrate comprehensive knowledge, clear understanding and outstanding skills as follows:

١,١. Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations.

١,٢. Capable of formulating, preparing pharmaceutical products from different sources and participating in systems for dispensing, storage and distribution of medications.

١,٣. Perform various qualitative and quantitative analytical techniques and fulfill criteria of GLP and GPMP assure the quality of raw materials, procedures and pharmaceutical products

١,٤. Provide information and education services to community and patients about rational use of medications and medical devices.

١,٥. Comprehend principles of patho-physiology of disease and participate with other health care professionals in improving health care services using evidence-based data.

١,٦. Plan design and conduct research using appropriate methodologies.

١,٧. Develop presentation, promotion, marketing, business administration, numeric and computation skills.

١,٨. Demonstrate capability of communication skills, time management, critical thinking, problem-solving, decision-making and team-working.

١,٩. Perform responsibilities in compliance with legal, ethical and professional rules.

١,١٠. Able to be a life-long learner for continuous improving of professional knowledge and skills.

٢. *Knowledge and Understanding*

The pharmacy graduate must demonstrate comprehensive knowledge and clear understanding of the core information associated with the profession as follows:

٢,١. Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.

٢,٢. Physical and chemical properties of various substances used in preparation of medicines including active ingredients, diluents, additives as well as biotechnology and radio- labeled products.

٢,٣. Principles of different analytical techniques using GLP guidelines and validation procedures.

٢,٤. Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.

٢,٥. Principles of drug design, development and synthesis.

٢,٦. Properties of different pharmaceutical dosage forms including novel drug delivery systems.

٢,٧. Principles of various instruments and techniques including sampling, manufacturing, packaging, labeling, storing and distribution processes in pharmaceutical industry.

٢,٨. Principles of pharmacokinetics and biopharmaceutics with applications in therapeutic drug monitoring, dose modification and bioequivalence studies.

٢,٩. Principles of hospital pharmacy including I.V. admixtures, TPN and drug distribution system,

٢,١٠. Principles of public health issues including sources and control of microbial contamination as well as sanitation, disinfection, sterilization methods and microbiological QC of pharmaceutical products.

٢,١١. Principles of body function in health and disease states as well as basis of genomic and different biochemical pathways regarding their correlation with different diseases.

٢,١٢. Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.

٢,١٣. Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADEs and drug interactions.

٢,١٤. Principles of clinical pharmacology, pharmacovigilance and the rational use of drugs.

٢,١٥. Basis of complementary and alternative medicine.

٢,١٦. Toxic profile of drugs and other xenobiotics including sources, identification, symptoms, management control and first aid measures.

٢,١٧. Methods of biostatistical analysis and pharmaceutical calculations.

٢,١٨. Principles of management including financial and human resources.

٢,١٩. Principles of drug promotion, sales and marketing, business administration, accounting and pharmacoeconomics.

٢,٢٠. Principles of proper documentation and drug filing systems.

٢,٢١. Regulatory affairs, pharmacy laws and ethics of health care and pharmacy profession.

٣. *Professional and Practical Skills*

٣,١. Use the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.

٣,٢. Handle and dispose chemicals and pharmaceutical preparations safely.

٣,٣. Compound, dispense, label, store and distribute medicines effectively and safely.

٣,٤. Extract, isolate, synthesize, purify, identify, and /or standardize active substances from different origins.

٣,٥. Select medicines based on understanding etiology and path physiology of diseases.

٣,٦. Monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infections in biological specimens.

٣,٧. Toxic profiles of different xenobiotics and detect poisons in biological specimens.

٣,٨. Apply techniques used in operating pharmaceutical equipment and instruments.

٣,٩. Maintain public awareness on rational use of drugs and social health hazards of drug abuse and misuse.

٣,١٠. Advise patients and other health care professionals about safe and proper use of medicines.

٣,١١. Conduct research studies and analyze the results.

٣,١٢. Employ proper documentation and drug filing systems.

٤. *Intellectual Skills*

٤,١. Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.

٤,٢. Apply GLP, GPMP, GSP and GCP guidelines in pharmacy practice.

٤,٣. Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical

preparations.

٤,٤. Uncover and control possible physical and/or chemical incompatibilities that may occur during drug dispensing.

٤,٥. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.

٤,٦. Apply the principles of bio – informatics and computer –aided tools in drug design.

٤,٧. Apply various principles to determine the characteristics of biopharmaceutical products.

٤,٨. Select and assess appropriate methods of infection control to prevent infections and promote public health.

٤,٩. Utilize the pharmacological basis of therapeutics in the proper selection and use of drugs in various disease conditions.

٤,١٠. Calculate and adjust dosage and dose regimen of medications.

٤,١١. Assess drug interactions, ADRs and pharmacovigilance.

٤,١٢. Apply the principles of pharmacoeconomics in promoting cost/effective pharmacotherapy.

٤,١٣. Analyze and interpret experimental results as well as published literature.

٤,١٤. Analyze and evaluate evidence-based information needed in pharmacy practice.

٥. *General and Transferable Skills*

٥,١. Communicate clearly by verbal and means.

٥,٢. Retrieve and evaluate information from different sources to improve professional competencies.

٥,٣. Work effectively in a team.

٥,٤. Use numeracy, calculation and statistical methods as well as information technology tools.

٥,٥. Practice independent learning needed for continuous professional development.

٥,٦. Adopt ethical, sales and safety guidelines.

٥,٧. Develop financial, sales and market management skills.

٥,٨. Demonstrate creativity and time management abilities.

٥,٩. Implement writing and presentation skills.

٥,١٠. Implement writing and thinking, problem- solving and decision-making abilities.

IVb- Comparison of Faculty Programme with (NARS):

١-*Attributes of the graduates:*

NARS	Faculty Programme
١-Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations	**Meet with number ١:** Be able to deal and handle chemicals, natural and pharmaceutical products effectively in a safe way and according to pharmacy law and legislations.
٢- Capable of formulating, preparing pharmaceutical products from different sources and participating in systems for dispensing, storage and distribution of medications.	**Meet with number ٢** Formulate, prepare and dispense pharmaceutical products from different sources.
٣- Perform various qualitative and quantitative and analytical techniques and fulfill criteria of GLP and GPMP to assure the quality of raw materials, procedures and pharmaceutical products.	**Meet with number ٣ and ٤** **٣-** Analyze quantitatively and qualitatively raw materials, pharmaceutical products and biological samples and apply principles of quality control and quality assurance for all natural and pharmaceutical products. **٤-** Perform according to GLP and GPMP techniques and fulfill criteria to assure the quality of raw materials, procedures and pharmaceutical products.

NARS	Faculty Programme
٤- Provide information and education services to community and patients about rational use of medications and medical services.	**Meet with number ١٦** ١٦- Educate patients and community about the proper and safe use of medications as well as risks of drugs abuse, radiation and different xenobiotics.
٥- Comprehend principles of pathophysiology of diseases and participate with other health care professionals in improving health care services using evidence- based data.	**Meet with number ٥** ٥- Comprehend principles of pathology of disease and participate with other health care professionals in improving health care services using evidence-based data.
٦- Plan, design and conduct research using appropriate methodologies.	**Meet with number ٦** ٦- Plan, design and conduct research using appropriate methodologies.
٧- Develop presentation, promotion, marketing, business administration, numeric and computation skills.	**Meet with number ٧ and ١٣** ٧- Have an appreciation for the business aspects of the profession; also be capable to develop presentation, promotion, marketing, business administration, numeric and computation skills. ١٣- Present himself/herself in a professional manner.

NARS	Faculty Programme
٨- Demonstrate capability of communication skills, time management, critical thinking, problem-solving, decision making and team working	**Meet with number ٨ and ١٨** **٨-** Demonstrate capability of communication skills, time management, critical thinking, and problem solving, decision making and team working. **١٨-** Recruit knowledge skills, experience and values to fulfill his / her obligation to educate and train the next generation of pharmacists.
٩- Perform responsibilities in compliance with legal, ethical and professional rules.	**Meet with number ٩** **٩-** Perform responsibilities in compliance with legal, ethical and professional rules.
١٠- Able to be a life – long learner for continuous improvement of professional knowledge and skills.	**Meet with number ١٠** **١٠-** Upgrade his / her professional and scientific information by continuous learning for improving of professional knowledge and skills.

٢- ***Points of attributes of the graduates in our Faculty of Pharmacy, Assiut University Programme exceeding that of the NARS (٢٠٠٩):***

١١- Keep attention to deal with expiry date and counterfeiting of drugs.
١٤- Implement different professional skills throughout professional career.
١٥- Keen to perform at high moral at working place.
١٧- Provide patients with information about medications and medical device emergencies.

٣- ***Comparison of the Provision to National Academic Reference Standards (NARS)***

NARS	Faculty Educational Programme ILO's
١. Knowledge and Understanding	
٢,١	**a١**
٢,٢	**a٢**
٢,٣	**a٦**
٢,٤	**a٦**
٢,٥	**a٦**
٢,٦	**a١٣**
٢,٧	**a٣**
٢,٨	**a٩**
٢,٩	**a١٢**
٢,١٠	**a٧**
٢,١١	**a٨**
٢,١٢	**a١٠**
٢,١٣	**a٩**
٢,١٤	**a٩**
٢,١٥	**a٥**
٢,١٦	**a١١**
٢,١٧	**a١٤**
٢,١٨	**a١٥**
٢,١٩	**a١٨**
٢,٢٠	**a١٧**
٢,٢١	**a١٦**

a٤	-
٢. Professional and Practical Skills	
c٤	٣,١
c٧	٣,٢
c١	٣,٣
c٩	٣,٤
c٥	٣,٥
c٨, c١٣	٣,٦
c٣, c١٠	٣,٧
c٢	٣,٨
c١٤	٣,٩
c١٥	٣,١٠
c١١	٣,١١
c١٢	٣,١٢
c٦	-
٣. Intellectual Skills	
b١, b٢,b٦	٤,١
b١٣	٤,٢
b٤	٤,٣
b٥	٤,٤
b١١	٤,٥
b٣	٤,٦
b٧	٤,٧
b١٢	٤,٨
b١٠	٤,٩

٤,١٠	b٩
٤,١١	b١٤
٤,١٢	b٧
٤,١٣	b٨
٤,١٤	b٨
-	b١٥
٤. General and Transferable Skills	
٥,١	d٣
٥,٢	d١, d٥
٥,٣	d٨
٥,٤	d٢
٥,٥	d٧
٥,٦	d٦
٥,٧	d١١
٥,٨	d١٠
٥,٩	d٣
٥,١٠	d٨
-	d٤
-	d٩

-

٤- *The Educational Programme ILOs Exceeding the National Academic Reference Standards (NARS/*٢٠٠٩*)*

Faculty Educational Programme ILOs
a-Knowledge and understanding
a٤. The basics of macro and microscopical characters of different human times, parasites and medicinal plant organs. Detection of adulteration as well as, their proper collection, storage and marketing in addition to chemo taxonomical classification of medicinal plants.
b- Intellectual Skills
b١٥. Survey laboratory investigation, identify organs in presence of certain parasites and interpret the clinical and laboratory findings to define a proper diagnosis
c- Professional and Practical Skills
c٦. Acquire skills in drug marketing and distribution system and effectively discuss application of drug properties with the medical profession.
d- General and Transferable Skills
d٤. Provide emergency first aids.
d٩. Provide good advice about balanced diet to promote the efficiency of medication and give hand in poisoning cases.

٥- ***Comparison between curriculum structure of NARS and FPAU programme***

Module	FPAU (%)	NARS (%)
Basic Sciences	١٥,٢	١٠-١٥
Pharmaceutical Sciences	٤٢.١	٣٥-٤٠
Medical Sciences	١٨,٨	١٥-٢٥
Pharmacy Practice	١٠,٦٦	١٠-١٥
Health and Environmental Sciences	٦,١	٥-١٠
Behavioral and Social Sciences	٢.٠٣	٢-٤
Pharmacy Management	٢.٠٣	٢-٤
Discretionary (Elective)	٣,٠٥	Up to ٨ %

V. Curriculum Structure and Contents:

Va. Programme Duration: ٥ years; in ١٠ semesters

(Number of courses = ٦٩, Total Units = ١٩٧)

Vb. Programme Structure

Serial	Courses	No. of Units/Week:		Total **(%)**
		Lectures (Unit) (١)	Labs and tutorial (Unit) (٢)	
b. i	Basic Sciences	٢٤	٦	٣٠ (١٥,٢)
b.ii	Pharmaceutical Sciences (Specialized courses)	٥٨	٢٥	٨٣ (٤٢,١)
b. iii	Medical Sciences	٢٨	٩	٣٧ (١٨,٨)
b. iv	Pharmacy Practice	١٦	٥	٢١ (١٠,٦٦)
b. v	Health and Environmental Sciences	٩	٢	١١ (٥,٦)
b. vi	Behavioral and Social Sciences	٤	-	٤ (٢,٠٣)
b. vii	Pharmacy Management	٤	-	٤ (٢,٠٣)
b.viii	Elective Courses	٤	٢	٦ (٣,٠٥)
b.ix	Total Units	١٤٨	٤٩	١٩٧
b. x	Practical / Field Training	--	٣٠٠ hr	٣٠٠ hr (٣)

(١): One hour = One Unit
(٢): Two-Three hours = One Unit
(٣): Hours of field training are not included in total No of hours

Comparison between curriculum structure of NARS and **FPAU programme**

code	Subject	Lectures	Lab/tutorial	Total (%)
١-Basic Sciences				
PBO-١٠١	General Botany	٥	١	٦
PPC-١١٥ PIC-١٢٢	Physical Chemistry Inorganic Chemistry	٥	١	٦
PZO-١٠٨	Zoology	٣	١	٤
MTH-١٢٩	Mathematics and Principles of Statistics	٢	-	٢
POC-١٤٣	Organic Chemistry (Prep.+١st years)	٢ +٣	١ +١	٧
PPH-١٥٠	Physics and biophysics	٤	١	٥
	Total	٢٤	٦	٣٠ (١٥,٢ %)
٢- Pharmaceutical Sciences				
PHG	Pharmacognosy	٩	٤	١٣
PHC	Pharmaceutical Organic. Chemistry	٩	٣	١٢
PHC	Pharmaceutical Analytical Chemistry	٨	٤	١٢
PHA	Physical Pharmacy	٥	٢	٧
PHA	Pharmaceutics	٥	٢	٧
PHG	Chemistry of Natural Products	٦	٢	٨
PHC	Medicinal Chemistry	٨	٤	١٢
PHI-٥٢٢	Industrial Pharmacy	٤	٢	٦
PHA-٤٤٣	Biopharmacy and Principles of Pharmacokinetics	٢	١	٣
	Total unites	٥٦	٢٤	٨٠ (٤٠.٦%)
٣- Medical Sciences				

code	Subject	Lectures	Lab/tutorial	Total
PAN-١٥٧	Anatomy	٢	١	٣
PHS-١٦٤	Histology	٢	١	٣
PPS-٢٧١	Physiology	٤	-	٤
PMI-٣٢٩	General Microbiology & Immunology	٢	١	٣
PMI-٣٧١	Pharmaceutical Microbiology	٢	١	٣
PPA-٣٧٨	Pathology	٢	١	٣
PPR-٣٨٥	Parasitology	٢	١	٣
PCL-٤٢٢ PCL-٤٦٤	Pharmacology-١ Pharmacology-٢	٦	٢	٨
PPC-٤٢٩ PCC-٤٧١	Biochemistry-١ Biochemistry-٢	٦	٢	٨
ENG-١٣٦	English Language and Terminology	٢	-	٢
	Total	٣٠	١٠	٤٠ (٢٠.٣%)

٤- Behavioral and Social Sciences

PSY-١٧٨	Psychology	٢	-	٢
PHU-٢٢٩	Human Rights	٢	-	٢
	Total	٤	-	٤ (٢,٠٣ %)

٥- Pharmacy Practice

PHA-١٧١	History of Pharmacy & Introduction to Pharmacy	٢	-	٢
PHA-٢٠١	Introduction to pharmaceutical Dosage form	٣	١	٤
PHA-٥٠١	Pharmacy Practice and Hospital Pharmacy	٣	١	٤
PHA-٥٣٦	Clinical Pharmacy	٣	١	٤
PHA-٣٣٦	Pharmacy Legislation	١	-	١
PHGE٠٠٢	Complementary and alternative medicines (Applied Pharmacognosy)	٤	٢	٦
	Total	١٦	٥	٢١ (١٠,٦٦ %)

٦- Health and Environmental Sciences

PPU-٤٣٦	Public Health	٢	-	٢
PCL-٥٦٤	Bioassay and Biostatistnd	٣	١	٤
PCL-٥٢٩	Toxicology and Forensic chemistry	٣	١	٤
PFA-٥٣٦	First Aid	١	-	١
	Total	٩	٢	١١ (٥,٦٪)

٧- Pharmacy Management

PHA-٤٧٨	Drug Marketing and Media	٢	-	٢
PAD-٢٣٦	Pharmacy Administration	٢	-	٢
	Total	٤	-	٤ (٢,٠٣٪)

٨- Elective courses *				
PHAE٠٠١	Radio Pharmacy	٢	١	٣
PHGE٠٠٢	Alternative Medicine	٢	١	٣
PHOCE٠٠٣	New trends for Synthesis & Purification of Pharmaceutical raw Materials	٢	١	٣
PHACE٠٠٤	Pharmaceutical Analysis & Quality Control	٢	١	٣
PHIE٠٠٥	Pharmaceutical Manufacturing	٢	١	٣
PHME٠٠٧	Drug Design	٢	١	٣
	Total	٤	٢	٦ (٣,٠٥٪)

* Student chooses one elective course in each semester at the fifth level

In classifying the courses into different categories, we followed the guidelines of the National Academic Reference Standards (NARS ٢٠٠٩) (Pharmacy Section).

Vc. Curriculum content:

Basic sciences:

Represents ١٥,٢ % of the total hours of the contents

General Botany, Zoology, physical chemistry and Inorganic chemistry, Mathematics and principles of statistics, Organic chemistry, and Physics and biophysics

Medical sciences:

Represents ١٨,٨ % of the total hours of the contents

Anatomy, Histology, Physiology, General microbiology and immunology, Pathology, Parasitology, Pharmacology, Biochemistry, English language and medical terminology.

Pharmaceutical sciences

Represents ٤٢.١ % of the total hours of the content

Pharmacognosy, Pharmaceutical organic chemistry, Pharmaceutical Analytical Chemistry, Physical Pharmacy, Pharmaceutical Microbiology, Pharmaceutics, Chemistry of Natural Products, Medicinal Chemistry, Industrial Pharmacy, Biopharmacy and Principles of Pharmacokinetics.

Behavioral and Social Sciences:

Represents ٢,٠٣ % of the total hours of the contents

Psychology and Human rights.

Pharmacy practice:

Represents ١٠,٦٦ % of the total hours of the content

Pharmacy practice and hospital pharmacy, Introduction to dosage forms, Clinical pharmacy, Pharmacy legislation, History and introduction to Pharmacy, Complementary and Alternative medicines (Applied Pharmacognosy)

Health and Environmental sciences:

Represents ٥,٦ % of the total hours of the contents

Public health, Toxicology and Forensic medicine, First aid, Biological assay and Biostatistics.

Pharmacy management:

Represents ٢,٠٣ % of the total hours of the contents

Drug marketing and Media, Pharmacy administration

Elective courses:

Represents ٣,٠٥ % of the total hours of the content

Alternative Medicine, Radiopharmacy, Pharmaceutical Analysis and Quality Control, New Trends for Synthesis & Purification of Pharmaceutical raw materials, Pharmaceutical Manufacturing and Drug design

VI. Programme Courses

VI. ١. Pre-pharmacy Year, First Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
PBO-١٠١	General Botany	٥	١	a١, a٤, a٨,b٤, c١٣, d١, d٨, d١٠
PZO-١٠٨	Zoology	٣	١	a١, b٤,b٨, b١٥, c٢, c٤, c١٣, d١, d٨, d١٠
PPC-١١٥ PIC-١٢٢	Physical Chemistry and Inorganic Chemistry	٣ ٢	١ ١	a١,a٢,a٤,b٣,b٤,b٥, c٧, d٨, d١٠

b. Complementary courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
MTH-١٢٩	Mathematics and statistics	٢	-	a١, a١٤, b٨, d١, d٨, d١٠
ENG-١٣٦	English Language and Terminology	٢	-	a١٥, a١٦, b٨, c٤, c٦, d١, d٨

VI. ٢. Pre-pharmacy Year, Second Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
POC-١٤٣	Organic Chemistry	٢	١	a١, a٢, b٣, b٤, c٧, d٨, d١٠
PPH-١٥٠	Physics	٤	١	a١, a٣, a٨, b٤, d١, d٨, d١٠
PAN-١٥٧	Anatomy	٢	١	a١,b٢, c١٣,d٣,d٦, d٨, d١٠
PHS-١٦٤	Histology	٢	١	a١,a٤, b٢, b١٥, c٢,c١٣, d٨, d١٠

b. Complementary courses:

Corse code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
PHA-١٧١	History of Pharmacy and introduction to pharmacy	٢	-	a١, d٧, a١٢, a١٣, a١٦, b٦, c٤, c١٥, d٣, d١٠
PSY-١٧٨	Psychology	٢	-	a١,c١٤, d٣,d١٠

VI. ٣. First Year Pharmacy, First Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٢٠١	Introduction to pharmaceutical dosage forms	٣	١	a١, a٣, a١٤, b٥, c١, c٢, c١٢, d١, d٢, d٣,d٦, d٧
PHG-٢٠٨	Pharmacognosy-١	٢	١	a١, a٤, b١, b٤, c٤, c٩, d١, d٨, d١٠
PHC-٢١٥	Pharmaceutical Organic Chemistry-١	٣	١	a١, a٦, b٣, c٧, d١, d٨,d٩ , d١١
PHC-٢٢٢	Pharmaceutical Analytical Chemistry-١	٢	١	a١, a٢, b١١, c٧, d١, d٨, d١٠
PPS-٢٧١	Physiology	٤	-	a١, a٨, b٢, d١, d٧,d١٠

VI. ٤. First Year Pharmacy, Second Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٢٤٣	Physical Pharmacy-١	٣	١	a١, a٢, b١, b٦, b٩, c١, c٢, d٣, d٧, d٨, d١٠
PHG-٢٥٠	Pharmacognosy-٢	٢	١	a١,a٣, a٤, b١, b٤, c٤, c٩, c١٤, d١, d٨, d١٠
PHC-٢٥٧	Pharmaceutical Organic Chemistry-٢	٣	١	a١, a٦, b٣, b١١, c٧, d١, d٧, d٨, d١٠
PHC-٢٦٤	Pharmaceutical Analytical chemistry-٢	٢	١	a١, a٢, b١١, c٧, d١, d٧, d٨, d١٠

b. Complementary courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PAD-٢٣٦	Pharmacy administration	٢	-	a١, a١٥, a١٨, b٨, c٦, c١٢,d١, d٧, d١٠, d١١
PHU-٢٢٩	Human rights	٢	-	a١,a١٦,b٨,c١١,d١,d٧,d٨

VI. ٥. Second Year Pharmacy, First Term

a. Fundamental courses:

Course code	Course Tile	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٣٠١	Physical Pharmacy-٢	٢	١	a١, a٢, b٥, b١٣, c٣, d١, d٧, d٨, d١٠
PHG-٣٠٨	Pharmacognosy-٣	٣	١	a١, a٤, b١, b٤, b١٤, c٣, c٤, c٩, d١, d٨, d١٠
PHC-٣١٥	Pharmaceutical Organic Chemistry-٣	٣	١	a١, a٦, b٣, b١١, c٧, d١, d٧, d٨, d١٠
PHC-٣٢٢	Applied Pharmaceutical and Instrumental analysis-١	٢	١	a١, a٣, a٦, b٤, b١٤, c٢, c٧, d١, d٧, d٨, d١٠
PMI-٣٧١	Pharmceutical microbiology	٢	١	a١, a٧, a١١, a١٣, b٧, b١١, b١٢, c٢, c٨, d٨, d١٠

b. Complementary courses:

Course code	Course Tile	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٣٣٦	Pharmacy legislation	١	-	a١, a١٦, d٦, d١٠

VI. ٦. Second Year Pharmacy, Second Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٣٤٣	Pharmaceutics-١	٢	١	a١, a٣, b١, b٦, b٩, c١, d١, d٩, d٧, d٨, d١٠
PHG-٣٥٠	Pharmacognosy-٤	٢	١	a١, a٤, b١, b٤, b١٤, c٣, c٤, c٩, d١, d٩, d١٢
PHC-٣٥٧	Pharmaceutical Organic Chemistry-٤	٣	١	a١, a٦, b٣, b١١, c٧, d١, d٨, d١٠
PHC-٣٦٤	Applied pharmaceutical and Instrumental *analysis* - ٢	٢	١	a١, a٦, b٤, c٢, d١, d٧, d٨, d١٠
PMI-٣٢٩	General microbiology and immunology	٢	١	a١, a٧, a١٠, b١١, b١٢, c٢, c٨, d٨, d١٠
PPA-٣٧٨	Pathology	٢	١	a١, a٨, a١٠, b٧, c٤, d١, d٧, d٨, d١٠
PPR-٣٨٥	Parasitology	٢	١	a١, a٤, a٧, a١٠, b١, b١٢, b١٥, c٢, c٨, d١, d٧, d٩, d١١

VI. ٧. Third Year Pharmacy, First Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٤٠١	Pharmaceutics-٢	٣	١	a١, a٢, a٣, b١, b٦, c١, d١, d٨, d١٠
PHG-٤٠٨	Chemistry of Natural Products-١	٣	١	a١, a٥, a٦, b٤, b١١, c٢, c٧, c٩, d١, d٧, d٨, d١٠
PHC-٤١٥	Medicinal Chemistry-١	٢	١	a٢, a٦, a٨, b٤, b١١, c٧, c٩, c١١, d١, d٧, d٨, d١٠
PCL-٤٢٢	Pharmacology-١	٣	١	a١, a٩, a١١, b١, b٢, b١٠, b١٣, c٣, d٢, d٨, d٩,d١٠
PBC-٤٢٩	Biochemistry-١	٣	١	a١, a٣, a٦, a٨, b٤, c٢, d١, d٦, d٨

b. Complementary courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PPU-٤٣٦	Public health	٢	-	a١, a٧, a١٠, b١٢, c٨, d٧, d٨, d٩, d١٠

VI.٨. Third Year Pharmacy, Second Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٤٤٣	Biopharmacy and principles of pharmacokinetics	٢	١	a٢, a٣, a٩, a١٤, b١, b٥, b٧, c١١, c١٢, d١, d٧, d٨, d١٠
PHG-٤٥٠	Chemistry of Natural Products-٢	٣	١	a١, a٥, a٦, b٤, b١١, b١٤, c٢, c٧, c٩, d١,d٨, d٩, d١٢, d١٣
PHC-٤٥٧	Medicinal Chemistry-٢	٢	١	a٢, a٦, a٨, b٣, b٤, b٧, b١١, c٧, c٩, c١١, d١, d٨, d١٠
PCL-٤٦٤	Pharmacology-٢	٣	١	a٩, a١١, a١٢, b١, b١٠, b١٤, c٣, c٥, c١٠, c١٢, d١, d٣, d٦, d٨
PBC-٤٧١	Biochemistry-٢	٣	١	a١, a٨, a١٠, b١٥, c٢, c٧, d١, d٥, d٨, d٩, d١٠

b. Complementary courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٤٧٨	Drug marketing and Media	٢	-	a١٥, a١٨, b٨, c١٢, d١٠, d١١

- At the end of the third year (semester ٨) each student must attain ٣٠٠ hours practical / field training in a pharmacy or at any company for drug manufacture
- Each students has a guide book, this book containing:
  ١. Specification and ILOs of the practical / field training.
  ٢. Knowledge about drugs, drug-drug interactions, good and ideal nutrition, first aids and how to deal with community and non-educated patients.
  ٣. Approval sheet for evaluation of student at the end of training.

- At the beginning of semester ٩ each student must submit his/her attendance sheet to student's affairs office.
- Vice dean of student's affair, through faculty council divide the trained students into groups to be evaluated by faculty staff members.

Title	Number of hours	Programme ILOs covered
Summer Training	٣٠٠ hour	a١٠, a١١, a١٦ ,a١٨, b٢, b١٠, b١٣, b١٤, c١, c٤, c٥, c٦, c١٢, c١٥, d١, d٣, d٤, d٦, d٩, d١١

VI. ٩. Fourth Year Pharmacy, First Term

a. Fundamental courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٥٠١	Pharmacy Practice and Hospital Pharmacy	٣	١	a١٢, a١٦, b١, b٨, b٩, b١٠, b١٣, c٤, c٥, c٧, c١١, c١٢, d١, d٢, d٣, d٦, d٧, d٨, d١٠
PHG-٥٠٨	Applied Pharmacognosy-١	٢	١	a٦, b٤, b١١, c٢, c١١, d١, d٧, d٨, d١٠
PHC-٥١٥	Medicinal Chemistry-٣	٢	١	a٢, a٦, a٨, a٩, b٣, b٤, b٧, b١١, c٢, c٧, c٩, c١١, d١, d٧, d٨, d١٠
PHI-٥٢٢	Industrial Pharmacy-١	٢	١	a١, a٣, b١١, c١, c٢, c١١, d١, d٧, d٨, d١٠
PCL-٥٢٩	Toxicology and Forensic chemistry	٣	١	a٧, a٨, a١١, b١٤, c٣, c١٠, c١١, d٨, d٩, d١٠

b. Complementary courses:

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PFA-٥٣٦	First aids	١	-	a٨, b٢, c٨, d٤, d٩, d١٠

c. Elective courses

Course code	Course title	Units/Week		Programme ILOs Covered (Matrix)
		lecture	Practical/tutorial	
PHAE٠٠١	Radio pharmacy	٢	١	a١, a٢,a٣,a٤, b١, b٢, b٣, b٤, c١,c٢, d١
PHGE٠٠٢	Alternative medicine	٢	١	a٥, b١, c١, c٥, c٩, d٣, d١١, d١٣, d١٥
PHOCE٠٠٣	New trends for synthesis & purification of pharmaceutical raw materials	٢	١	a١, a٦, b١, b٣, c٢, c٦, c٩, c١١, d١, d٨, d١٢, d١٣, d١٤.
PHACE٠٠٤	Pharmaceutical analysis & quality control	٢	١	a١, a٣, a٦, b٤, b١٤, c٢, c٧, d١, d٩, d١٢.
PHIE٠٠٥	Pharmaceutical manufacturing	٢	١	a١, a٣, a١٣, b٦, b١١, b١٣, c١, c٢, c٧, c١١, d١, d٩, d١٢
PHME٠٠٧	Drug Design	٢	١	a٢, a٦, a١١, b٧, b١١, c٧, c٩, c١١, d٩, d١٢, d١٣

VI. ١٠. Fourth Year Pharmacy, Second Term

a. Fundamental courses:

Course Code	Course Title	Units / Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-٥٤٣	Clinical Pharmacy	٣	١	a٣, a١٠, a١٢, a١٦, a١٧, b١, b٢, b٨, b٩, b١٣, b١٤, c٣, c٤, c٥, c٧, c١١, c١٢, d١, d٢, d٣, d٥, d٦, d٧, d٨, d١٠
PHG-٥٥٠	Applied Pharmacognosy-٢	٢	١	a٥, a٦, a١٣, b١, b٤, b٨, b١١, b١٤, c٢, c٣, c٥, c٩, c١١, d١, d٣, d٧, d٨, d١٢
PHC-٥٥٧	Medicinal Chemistry-٤	٢	١	a٢, a٦, a١١, b٣, b٤, b٧, b١١, c٧, c٩, c١١, d١, d٨, d٩, d١٢, d١٣
PHC-٥٦٤	Industrial Pharmacy-٢	٢	١	a٢, a٦, a٨, a٩, b٣, b٤, b٧, b١١, c٢, c٧, c٩, d١, d٧, d٨
PCL-٥٦٤	Bioassay and Biostatistics	٣	١	a٦, a١٤, b٤, c٢, c٩, c١٠, d٨, d١٠,

b. Elective courses

Course code	Course title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical/ tutorial	
PHAE٠٠١	Radio pharmacy	٢	١	a٣, a٩, a١٢, a١٦, b١, b٦, b٩, c١, c٤, c١٢, c١٣, d١, d٣, d٧
PHGE٠٠٢	Alternative medicine	٢	١	a٥, b١, c١, c٥, c٩, d٣, d٧, d٩
PHOCE٠٠٣	New trends for synthesis & purification of pharmaceutical raw materials	٢	١	a١, a٦, b١, b٣, c٢, c٦, c٩, c١١, d١, d٧, d١٠, d١١.
PHACE٠٠٤	Pharmaceutical analysis & quality control	٢	١	a٣, a٦, a١٣, b٤, b١٣, c٢, c٧, d١, d٨, d١٠
PHIE٠٠٥	Pharmaceutical manufacturing	٢	١	a١, a٣, a١٣, b٦, b١١, b١٣, c١, c٢, c٧, c١١, d١, d٩, d١٢
PHME٠٠٧	Drug Design	٢	١	a٢, a٦, a١١, b٧, b١١, c٧, c٩, c١١, d٧, d٨, d١٠

VII- Programme admission requirements

١- Graduates of the Egyptian high school (branch of science) are admitted to the Faculty of Pharmacy according to the rules set by the Supreme Council of Universities (SCU). Graduates carrying certificate equivalent to the Egyptian high school can be admitted according to the regulations.

٢- The Faculty of Pharmacy, Assiut University enrolls Pharmacy students from other governmental universities according to the rules approved by SCU In this case, if the students have passed some courses, investigation and matching of each course contents by the corresponding Departments will be carried out. Further processing of the documents will be done according to the regulations.

VIII- Regulations for progression and programme completion:

١- Pharmacy students spend five educational years, divided on ten terms (each of ١٥ weeks). Assessment is carried out through written exams at the end of semester. Midterm, oral and practical exam are hold during or at the end of the semester.

٢- Student must attend lectures and lab.classes. Attendance of the lab. classes must be not less than ٧٥% of the total no. of the lab.classes.

Student who does not fulfill this requirement is exempted from the written exam according to the Faculty Council decisions.

٣- A minimum of ٦٠% of the maximum grade (MG) for any of the fundamental courses and ٥٠٪ for complementary courses is considered to pass courses.

٤- Course grades are as follows:

- ٨٥٪ or more of MG: Excellent.

- ٧٥٪ to less than ٨٥٪ of MG: Very Good.

- ٦٥٪ to less than ٧٥٪ of MG: Good.

- ٦٠٪ to less than ٦٥٪ of MG: Pass for fundamental courses.

-٥٠٪ to less than ٦٥٪ of MG: Pass for complementary courses.

-٣٠٪ to less than ٦٠٪ of MG: weak for fundamental courses.

-٣٠٪ to less than ٥٠٪: weak for complementary courses.

- Less than ٣٠٪ of the written exam: very weak.

٥- Student can proceed to the next year if they pass all courses.

٦- Student cannot proceed to the next year of the programme if he/she carries more than four courses from the running or from previous levels.

٧- Student graded by week scores is allowed to resit for makeup exam session held at the end of each term in February and June. Students at the final level who have failed in not more than two courses of the running level or from previous levels are allowed for makeup exam in September of the same year. If the student fails again, he/she has to resit for exams with the fresh students registered in the fourth

professional level.

٨- Student is given two opportunities of enrollment as regular student in the exams of pre-pharmacy year after which he/she is not allowed to be enrolled as external student.

٩- Student in the first professional year is given the chance to resist for the failed exams twice before he/she is enrolled as external student.

١٠- Student is given the chance to fail the exams twice in the second and third professional years before he/she is allowed to be enrolled as external student for ٣ times.

١١- Student in the fourth professional year is given two opportunities of enrolment as regular student, but if he/she succeeds in half the number of subjects they would be allowed to resit for the exams in the subjects they have failed indefinitely until they are graduated.

١٢- Once an ”external” student in a certain level passes exams for that level, he/she is automatically reregistered as a ”regular” student in the fallowing level.

١٣- Reset external student is allowed to get written, oral and practical exams only (no midterm exams). The marks assumed for midterm are added to the final written exams

١٤- The final grade for bachelor degree depends upon the cumulative scores of student in the fifth years.

١٥- Student must apply field training in pharmaceutical location for not less than ٣٠٠ hours during the summer vacation after the third year

and each student must have certificate from the training location for his/her training.

١٦- Summer training is assist as a component of the laboratory course of Pharmacy Practice and Hospital Pharmacy (PHA-٥٠١)

١٧- Final year students are encouraged to carry out ``Scientific excursion`` to some Pharmaceutical Factories according to regulations from Faculty Students Affairs Committee approved by Faculty Council.

IX-Student Assessment Methods

Method of achievement and assessment	Intended Learning Outcomes (ILOs)
Written exam	Knowledge & understanding, Intellectual skills and professional skills
Oral exam	Knowledge & understanding, Intellectual skills, transferable skills and professional skills
Tutorials	Knowledge skills, Intellectual skills, General transferable skills and professional skills
Team work assignment and oral presentation of essays	Knowledge, General & transferable and professional skills
Field based activity (practical/field)	Knowledge, Intellectual, and professional skills

X-Evaluation of programme Intended Learning Outcomes (ILOs):

Evaluator	Tool	sample	Date
Senior students (٤th year)	Questionnaire and meetings	٩ ١٢	٢٠١٢ ٢٠١٣
Alumni	Questionnaire and meetings	٩ ١٢	٢٠١٢ ٢٠١٣
Stakeholders	Questionnaire and meetings	٩ ١٢	٢٠١٢ ٢٠١٣
Internal and external evaluation	Reviewing		٢٢/٩/٢٠١٢ ٣٠/١٢/٢٠١٣
Simulation visit (AUQAC)	Reviewing	-	٦/٢/٢٠١٣ ٣١/٣/٢٠١٣ ٢٤/١٠/٢٠١٣ ٢١/١١/٢٠١٣
ISO ٢٠٠٨/٩٠٠١	Reviewing	-	١٢/١٢/٢٠١٢

XI- Intended Learning Outcomes (ILOs) Matrix

XI- Intended Learning Outcomes (ILOs) Matrix

١- Pre-Pharmacy Year:

Skills/Course		a																b														c												d									
First Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
PBO-101	General Botany	*			*				*														*																						*							*		*	
PZO-108	Zoology	*																					*				*							*		*			*												*				*		*	
PPC-115 PIC-122	Physical Chemistry and Inorganic Chemistry	*	*		*																	*	*	*																		*														*		*	
MTH-129	Mathematics and Statistics	*													*												*																											*		*	
ENG-136	English Language and Terminology															*	*										*																											*						
Second Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
POC-143	Organic Chemistry	*	*																			*	*																																	*		*	
PPH-150	Physics	*		*					*														*																																	*		*	
PAN-157	Anatomy	*																			*																																			*		*	*		*	
PHS-164	Histology	*			*																*													*		*																		*		*	
PHA-171	History of Pharmacy and Introduction to Pharmacy	*						*					*	*			*								*																															*		*	
PSY-178	Psychology	*																																																											*		*	

٢- First Year Pharmacy:

Skills/Course		a																	b													c													d										
First Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
PHA-201	Introduction to Pharmaceutical Dosage Forms	*		*											*									*											*	*									*						*	*					
PHG-208	Pharmacognosy -1	*			*															*			*														*														*							*		*	
PHC-215	Pharmaceutical Organic Chemistry-1	*					*															*																															*						*		*		*
PHC-222	Pharmaceutical Analytical Chemistry-1	*	*																											*																						*						*		*	
PPS-271	Physiology	*							*											*																																		*							*		*	
Second Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
PHA-243	Physical Pharmacy-1	*	*																	*					*		*								*	*																					*					*		*	
PHG-250	Pharmacognosy-2	*		*	*															*			*															*																					*				*		*	
PHC-257	Pharmaceutical Organic Chemistry-2	*					*															*								*																														*	*		*	
PHC-264	Pharmaceutical Analytical Chemistry-2	*	*																											*																														*	*		*	
PHU-229	Human rights	*															*										*																																	*	*			
PAD-236	Pharmacy Administration	*														*			*								*																																	*			*	*

٣-Second Year Pharmacy:

Skills/Course / First Semester		a																	b													c													d										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
PHA-301	Physical Pharmacy-2	*	*																					*								*					*														*					*	*			*	
PHG-308	Pharmacognosy-3	*			*															*			*								*					*		*			*									*					*			*	
PHC-315	Pharmaceutical Organic Chemistry-3	*					*															*							*																					*					*	*			*	
PHC-322	Applied Pharmaceutical and Instrumental Analysis-1	*		*			*																*													*					*									*					*	*			*	
PMI-371	Pharmaceutical Microbiology	*						*				*		*												*				*	*					*						*														*			*	
PHA-336	Pharmacy Legislation	*															*																																										*			*	
Second Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
PHA-343	Pharmaceutics-1	*		*																*					*				*						*																*					*	*			*	
PHG-350	Pharmacognosy-4	*			*															*			*								*						*	*					*								*					*			*	
PHC-357	Pharmaceutical Organic Chemistry-4	*					*															*							*																					*					*	*	*		*	
PHC-364	Applied Pharmaceutical and Instrumental Analysis-2	*					*																*													*														*					*	*			*	
PMI-329	General Microbiology and Immunology	*						*			*																			*	*					*						*														*			*	
PPA-378	Pathology	*							*		*															*												*																		*			*	
PPR-385	Parasitology	*			*			*			*									*											*		*			*						*														*		*		*

٤- Third Year Pharmacy:

Skills/Course / First Semester		a																	b													c													d										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
PHA-401	Pharmaceutics 2	*	*	*																*					*											*											*										
PHG-408	Chemistry of Natural Products-1	*				*	*																*							*						*										*					*	*		*	
PHC-415	Medicinal Chemistry-1		*				*		*														*							*																*					*	*		*	
PCL-422	Pharmacology-1	*								*		*								*	*								*			*					*													*	*	*	
PBC-429	Biochemistry-1	*		*			*		*														*													*											*					*		*		
PPU-436	Public Health	*						*			*																																											*	*	*	
Second Semester		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
PHA-443	Biopharmacy and Principles Of Pharmacokinetics		*	*						*					*					*				*		*																	*	*								*	*			
PHG-450	Chemistry of Natural Products-2	*				*	*																*							*				*											*						*	*		*	
PHC-457	Medicinal Chemistry-2		*				*		*													*	*			*				*															*						*		*	
PCL-464	Pharmacology-2									*		*	*							*									*				*				*		*						*		*		*	*		*	
PBC-471	Biochemistry-2	*							*		*																							*		*										*					*	*	*	
PHA-478	Drug Marketing														*		*										*																											*	*

٥- Fourth Year Pharmacy:

a

Skills/Course		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
First Semester																			
PHA-501	Pharmacy Practice and Hospital Pharmacy												*				*		
PHG-508	Applied Pharmacognosy-1						*												
PHC-515	Medicinal Chemistry-3		*				*		*	*									
PHI-522	Industrial Pharmacy-1	*		*															
PCL-529	Toxicology and Forensic Chemistry							*	*			*							
PFA-536	First Aid								*			*							
	Elective Course																		
Second Semester																			
PHA-536	Clinical Pharmacy			*							*		*				*	*	
PHG-550	Applied Pharmacognosy-2					*	*							*					
PHC-557	Medicinal Chemistry-4		*				*		*	*									
PHI-543	Industrial Pharmacy-2	*												*					
PCL-564	Bioassay and Biostatics						*								*				
	Elective Course																		

b

Skills/Course		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
First Semester																
PHA-501	Pharmacy Practice and Hospital Pharmacy	*							*	*	*			*		
PHG-508	Applied Pharmacognosy-1				*							*				
PHC-515	Medicinal Chemistry-3			*	*			*				*				
PHI-522	Industrial Pharmacy-1											*				
PCL-529	Toxicology and Forensic Chemistry														*	
PFA-536	First Aid		*													
	Elective Course															
Second Semester																
PHA-536	Clinical Pharmacy	*	*						*	*				*	*	
PHG-550	Applied Pharmacognosy-2	*			*				*			*			*	
PHC-557	Medicinal Chemistry-4			*	*			*				*				
PHI-543	Industrial Pharmacy-2						*					*				
PCL-564	Bioassay and Biostatics				*											
	Elective Course															

c

Skills/Course		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
First Semester																
PHA-501	Pharmacy Practice and Hospital Pharmacy				*	*		*				*	*			
PHG-508	Applied Pharmacognosy-1		*									*				
PHC-515	Medicinal Chemistry-3		*					*		*		*				
PHI-522	Industrial Pharmacy-1	*	*									*				
PCL-529	Toxicology and Forensic Chemistry			*							*	*				
PFA-536	First Aid								*							
	Elective Course															
Second Semester																
PHA-536	Clinical Pharmacy			*	*	*		*				*	*			
PHG-550	Applied Pharmacognosy-2		*	*		*				*		*				
PHC-557	Medicinal Chemistry-4		*					*		*						
PHI-543	Industrial Pharmacy-2	*						*				*				
PCL-564	Bioassay and Biostatics		*							*	*					
	Elective Course															

d

Skills/Course		1	2	3	4	5	6	7	8	9	10	11
First Semester												
PHA-501	Pharmacy Practice and Hospital Pharmacy	*	*	*			*	*	*		*	
PHG-508	Applied Pharmacognosy-1	*						*	*		*	
PHC-515	Medicinal Chemistry-3	*						*	*		*	
PHI-522	Industrial Pharmacy-1	*						*	*		*	
PCL-529	Toxicology and Forensic Chemistry								*	*	*	
PFA-536	First Aid				*					*	*	
	Elective Course											
Second Semester												
PHA-536	Clinical Pharmacy	*	*	*		*	*	*	*		*	
PHG-550	Applied Pharmacognosy-2	*		*				*	*		*	
PHC-557	Medicinal Chemistry-4	*						*	*		*	
PHI-543	Industrial Pharmacy-2	*						*	*		*	
PCL-564	Bioassay and Biostatics								*		*	
	Elective Course											

٦- Elective courses:

See page ٥٠