



Faculty of Pharmacy Assiut University

THE PROGRAM SPECIFICATION FOR UNDERGRADUATE

Bachelor of Pharmaceutical Sciences



OCTOBER 2015

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Contents

INTRODUCTION-----	1
SPECIFICATION OF THE EDUCATIONAL PROGRAMME-----	3
<u>A-</u> -----	B
ASIC INFORMATION: -----	3
<i>I-Programme title</i> -----	3
<i>II-Programme type</i> -----	3
<i>III-Departments responsible</i> -----	3
III. a. Departments affiliated to Faculty of Pharmacy -----	3
III. b. Departments affiliated to Faculty of Medicine-----	3
III. c. Departments affiliated to Faculty of Science -----	3
III. d. Department affiliated to Faculty of Arts -----	3
III. e. Department affiliated to Faculty of Education -----	4
III. f. Department affiliated to Faculty of Commerce-----	4
III. g. Department affiliated to Faculty of Law -----	4
<i>IV- Coordinator</i> -----	4
<i>V. External Evaluators</i> -----	4
<i>V. Year of Operation</i> -----	4
B- PROFESSIONAL INFORMATION -----	5
<i>I-Programme Aims</i> -----	5
Achievement of programme aims -----	6
<i>II- Attributes of the Graduates</i> -----	7

III. Intended Learning Outcomes (ILOs) -----	9
III.a- Knowledge and Understanding -----	9
III. b- Intellectual Skills -----	12
III. c. Professional and Practical Skills -----	14
III. d General and Transferable Skills-----	15
IV- Academic Standards -----	17
IV. a External Reference Standards -----	17
1. Attributes of the Graduates-----	17
2. Knowledge and Understanding -----	18
3. Professional and Practical Skills-----	20
4. Intellectual Skills-----	21
5. General and Transferable Skills -----	23
IV. b Comparison of Faculty Programme with (NARS) -----	24
1-Attributes of the graduates -----	24
2- Points of attributes of the graduates in our Faculty of Pharmacy, Assiut University Programme exceeding that of the NARS (2009): -----	26
3- Comparison of the Provision to National Academic Reference Standards (NARS)-----	27
4- The Educational Programme ILOs Exceeding the National Academic Reference Standards (NARS/2009) -----	30
5- Comparison between curriculum structure of NARS and FPAU programme -----	31
V. Curriculum Structure and Contents: -----	32
V. a. Programme Duration: 5years; in 10 semesters -----	32
V. b. Programme Structure -----	32
1-Basic Sciences -----	33
2- Pharmaceutical Sciences -----	33

3- Medical Sciences -----	34
4- Behavioral and Social Sciences -----	34
5- Pharmacy Practice -----	35
6- Health and Environmental Sciences -----	35
7- Pharmacy Management -----	35
8- Elective courses * -----	36
V. c. Curriculum content: -----	37
1. Basic sciences -----	37
2. Medical sciences -----	37
3. Pharmaceutical sciences -----	37
4. Behavioral and Social Sciences -----	37
5. Pharmacy practice -----	37
6. Health and Environmental sciences -----	38
7. Pharmacy management -----	38
8. Elective courses -----	38
VI. Programme Courses -----	39
VI. a. Pre-pharmacy Year, First Term -----	39
1. Fundamental courses -----	39
2. Complementary courses -----	39
VI. b. Pre-pharmacy Year, Second Term -----	40
1. Fundamental courses -----	40
2. Complementary courses: -----	40
VI. c. First Year Pharmacy, First Term -----	41
1. Fundamental courses -----	41
VI. d. First Year Pharmacy, Second Term -----	41
1. Fundamental courses -----	41
2. Complementary courses -----	42
VI. e. Second Year Pharmacy, First Term -----	42
1. Fundamental courses -----	42

2. Complementary courses -----	42
VI. f. Second Year Pharmacy, Second Term -----	43
1. Fundamental courses -----	43
VI. g. Third Year Pharmacy, First Term-----	44
1. Fundamental courses: -----	44
2. Complementary courses -----	44
VI. h. Third Year Pharmacy, Second Term -----	45
1. Fundamental courses -----	45
2. Complementary courses -----	45
VI. i. Fourth Year Pharmacy, First Term -----	47
1. Fundamental courses -----	47
2. Complementary courses -----	47
VI. k. Fourth Year Pharmacy, Second Term -----	48
1. Fundamental courses -----	48
VI. l. Elective courses -----	49
<i>VII-Programme admission requirements</i> -----	50
<i>VIII-Regulations for progression and programme completion</i>	50
<i>IX-Student Assessment Methods</i> -----	54
<i>X-Evaluation of programme Intended Learning Outcomes</i>	
<i>(ILOs)</i> -----	55
<i>XI- Intended Learning Outcomes (ILOs) Matrix</i> -----	57
1- Pre-Pharmacy Year-----	57
2-First Year Pharmacy -----	58
4- Third Year Pharmacy -----	60
5- Fourth Year Pharmacy -----	61
6- Elective courses -----	61

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

Program specifications for undergraduate 2015-2016

(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:

I-Programme title:Bachelor of Pharmaceutical Sciences

II-Programme type: Single **Double** **Multiple**

III-Departments responsible

III.a. Departments affiliated to Faculty of Pharmacy

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

III.b. Departments affiliated to Faculty of Medicine

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

III.c. Departments affiliated to Faculty of Science

Botany, Zoology, Physics, Chemistry and Mathematics

III.d. Department affiliated to Faculty of Arts

English language

III.e. Department affiliated to Faculty of Education

Psychology

III.f. Department affiliated to Faculty of Commerce

Accounting and Auditing

III.g. Department affiliated to Faculty of Law

General Law

IV- Coordinator

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

V. External Evaluators

External reviewer is a vital component of overall QA unit activities that should be performed through suitably appointed qualified and experienced people. The external evaluators of courses are concerned with the adequacy of the written exam and fulfillment of ILOs and other points as indicated by the planned format.

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

Prof. Dr. Mohamed S. Kamel: Dept of Pharmacognosy, Faculty of Pharmacy, Minia University

V. Year of Operation: Academic year, 2015/ 2016.

B- Professional Information

I-Programme Aims

The Faculty of Pharmacy, Assiut University 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 and 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, Assiut University aims to:

- 1-** Adopt curriculum intended to graduate general practitioner pharmacist.
- 2-** Provide graduates with a structural learning programme that will help them to apply the knowledge and skills in the daily practice.
- 3-** Foster student's abilities to communicate effectively, solve problems and make rational, independent judgments based on scientific reasoning about drug development and drug control.
- 4-** Provide knowledge in the clinical, behavioral and basic pharmaceutical sciences for the benefit of society.

Program specifications for undergraduate 2015-2016

- 5- Persuade collaboration with other health professional organizations to achieve its goal of excellence in service to community.
- 6- 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.
- 7- Coach students to plan, design and conduct research using appropriate methodologies.
- 8- 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.
- 9- Transfer skills of data mining and application of IT to optimize benefits of medicine outcomes.
- 10-Strengthen compliance and binding legal, ethical and professional rules.
- 11-Apply principles of quality assurance for pharmaceutical and natural products.
- 12-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

The system of external evaluation has been established by:

Prof. Dr. Mohamed B. Alashmawy

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

Prof. Dr. NorhanFanaky

Department of Microbiology, Faculty of Pharmacy, Alexandria University

Prof. Dr. Mohamed S. Kamel: Dept of Pharmacognosy, Faculty of Pharmacy, Minia 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:

- 1-** Be able to deal and handle chemicals, keep and transport natural and pharmaceutical products effectively following coded requirements of pharmacy law and legislations.
- 2-** Formulate, prepare and dispense pharmaceutical products from different sources.

Program specifications for undergraduate 2015-2016

- 3-** 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.
- 4-** Perform according to GLP and GPMP techniques and fulfill criteria to assure the quality of raw materials, procedures and pharmaceutical products.
- 5-** Comprehend principles of pathophysiology of diseases and participate with other health care professionals in improving health care services using evidence-based data.
- 6-** Plan, design and conduct research using appropriate methodologies.
- 7-** Have an appreciation for the business aspects of the profession; also be capable to develop presentation, promotion, marketing, business administration, numeric and computation skills.
- 8-** Demonstrate capability of communication skills, time management, critical thinking, and problem solving, decision making and team working.
- 9-** Practice professional responsibilities in compliance with legal and ethical rules.
- 10-** Upgrade professional and scientific knowledge and skills by conducting continuous self-learning approach.
- 11-** Keep attention to deal with expiry date and counterfeiting of drugs.
- 12-** Able to work well with both managers and subordinates.

Program specifications for undergraduate 2015-2016

- 13-**Present themselves in a professional prestigious manner.
- 14-**Recognize disease prevention and process of infection as a part of pharmacist's role in public health.
- 15-** Keen to perform at high moral at working place.
- 16-** Educate patients and community about the proper use of medications as well as risks of drug abuse, radiation, different xenobiotics and food drug interactions.
- 17-** Provide information about proper medications and medical devices as well as management of toxicities and medical emergencies.
- 18-** Recruit knowledge skills, experience and values to fulfill his/her obligation to educate and train the next generation of pharmacists.

III. Intended Learning Outcomes (ILOs)

III.a- Knowledge and Understanding

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

- a1.** 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.
- a2.** 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.

Program specifications for undergraduate 2015-2016

- a3.** The principles of various instruments used in different processes, drug formulation, packaging, storage, route of administration.
- a4.** The basics of macro- and microscopical characters of different human tissues, parasites and medicinal plant organs. Detection of adulteration as well as, proper collection, storage and marketing in addition to chemo-taxonomical classification of medicinal plants
- a5.** 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.
- a6.** 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.
- a7.** 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.
- a8.** 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.

Program specifications for undergraduate 2015-2016

- a9.** 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.
- a10.** The etiology, epidemiology, laboratory diagnosis, treatment and clinical features of different diseases and their pharmacotherapeutic approaches.
- a11.** The concept of drug toxicity and other xenobiotics including sources, identification, symptoms, management, control and first aid measures including fractures, wounds and poison management
- a12.** Different routes of drugs administration contemporary hospital pharmacy and services as IV admixtures, total parenteral nutrition (TPN) and drug distribution system.
- a13.** 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
- a14.** Basic understanding of pharmaceutical calculations, different methods of biostatistical analysis, and kinetics
- a15.** Principles of management, good communication and improvement of foreign languages

Program specifications for undergraduate 2015-2016

- a16.** The pharmacy laws, ethics and human rights, codes of practice in community and industry, its impact on relationship with patient and other healthcare professionals.
- a17.** Concepts and principles of clinical pharmacy practice, including maintenance of patient profiles, proper documentation and drug filing systems.
- a18.** Principles of drug promotion, sales and marketing, business administration, accounting and basis of pharmacoeconomics in pharmacy practice.

III.b- Intellectual Skills

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

- b1.** Apply knowledge to prepare safe and effective medicines for individual patient use.
- b2.** Correlate the relationship between human body organs of different systems, safe, effective and economical use of medicines.
- b3.** 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.
- b4.** Apply qualitative and quantitative analytical, microscopical and biological methods for quality control and assay of raw materials as well as pharmaceuticals and inbiological media.

Program specifications for undergraduate 2015-2016

- b5.** Solve problems of thermodynamics and finding the appropriate strategies for control of physical and/or chemical incompatibilities that may occur during drug dispensing.
- b6.** Choose rationally the systems used for delivery and in formulation of biologically active molecules.
- b7.** Exploitate information including biotechnology and pharmacoeconomic principles to propose approaches for monitoring and design of medicinal agents and effective pharmacotherapy
- b8.** Assess reliable scientific data and published literature.
- b9.** Adjust dose and regimen of medications.
- b10.** Apply pharmacological knowledge about different drugs to ensure proper selection of therapeutics and use of drugs in various disease conditions.
- b11.** Select appropriate methods and equipments for extraction, isolation, purification, identification, analysis and formulation of biologically active ingredients from natural or synthetic origin.
- b12.** Evaluate different methods of infection control, pathogenesis and pathological changes to prevent infections and promote public health.
- b13.** Adopt guidelines in pharmacy practice as GLP, GSP, GCP and GPMP.
- b14.** Assess drug interactions and adverse drug reactions for the proper selection of drugs in various disease conditions

- b15.** Survey laboratory investigations, identify organs, detect the presence of certain parasite and interpret the clinical and laboratory findings to define a proper diagnosis.

III. c. Professional and Practical Skills

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

- c1.** Compound, package, and dispense medicines in appropriate dosage forms accurately and safely
- c2.** Handle different pharmaceutical instrumentations and laboratory procedures, for manufacture and analysis of biological samples and drugs either of herbal, animal or synthetic sources.
- c3.** Undertake risk assessments concerning drug-drug, drug-herb interaction, adverse reaction, toxicity profile and incompatibilities in different pharmaceutical preparations.
- c4.** Use properly the pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.
- c5.** Have the ability to prescribe OTC medication and medicines based on understanding etiology of some diseases.
- c6.** Acquire skills in drug marketing and distribution system. Efficiently discuss application of drug properties with the medical profession.
- c7.** 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.

Program specifications for undergraduate 2015-2016

- c8.** 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.
- c9.** Extract, isolate, synthesize, identify, standardize the medicines of different origins in isolated organs, formulate and suggest a complimentary and/or alternative medicine.
- c10.** Determine the toxicity profiles of different xenobiotics and detect poisons in biological specimens
- c11.** Conduct research studies and analyze results.
- c12.** Employ proper documentation and drug filing system.
- c13.** Identify the structural features of human body organs, animal and plant and differentiate visually and microscopically their tissue elements.
- c14.** Evaluate drug abuse and adulteration relevant to their impact on social and public health.
- c15.** Advise patients and other health care professionals about safe and proper use of medicines

III.d General and Transferable Skills

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

- d1.** Apply information technology skills, including word processing, spreadsheet use, database use, archiving data and information

Program specifications for undergraduate 2015-2016

retrieval through online computer searches, and internet communication.

- d2.** Calculate doses and dosage regimens. Also, acquire skills in numeric, computation methods and application of biological statistics in different field of pharmacy.
- d3.** Interact effectively with patients and the public health care professionals. Be able to Interpret and present pharmaceutical information either in written and oral styles.
- d4.** Provide emergency first aids.
- d5.** Retrieve and critically evaluate pharmaceutical and clinical information and clinical laboratory data.
- d6.** Perform according to professional and moral ethical codes and approaches considering laws of human rights as well as legal and safety guidelines.
- d7.** Demonstrate critical thinking, problem solving and decision making abilities in a variety of theoretical and practical situations.
- d8.** Work effectively in a team in a variety of health care settings.
- d9.** Provide good advice about balanced diet to promote the efficiency of medication and give hand in poisoning cases.
- d10.** Manage time effectively.
- d11.** Develop financial, sales and market management skills.

IV- Academic Standards

IV.a External Reference Standards

National Academic Reference Standards (NARS/2009) were adopted.

1. 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:

- 1.1.** Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations.
- 1.2.** Capable of formulating, preparing pharmaceutical products from different sources and participating in systems for dispensing, storage and distribution of medications.
- 1.3.** Perform various qualitative and quantitative analytical techniques and fulfill criteria of GLP and GPMP assure the quality of raw materials, procedures and pharmaceutical products
- 1.4.** Provide information and education services to community and patients about rational use of medications and medical devices.
- 1.5.** Comprehend principles of patho-physiology of disease and participate with other health care professionals in improving health care services using evidence-based data.

Program specifications for undergraduate 2015-2016

- 1.6.** Plan design and conduct research using appropriate methodologies.
- 1.7.** Develop presentation, promotion, marketing, business administration, numeric and computation skills.
- 1.8.** Demonstrate capability of communication skills, time management, critical thinking, problem-solving, decision-making and team-working.
- 1.9.** Perform responsibilities in compliance with legal, ethical and professional rules.
- 1.10.** Able to be a life-long learner for continuous improving of professional knowledge and skills.

2. Knowledge and Understanding

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

- 2.1.** Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.
- 2.2.** 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.
- 2.3.** Principles of different analytical techniques using GLP guidelines and validation procedures.
- 2.4.** Principles of isolation, synthesis, purification, identification, and

Program specifications for undergraduate 2015-2016

standardization methods of pharmaceutical compounds.

- 2.5.** Principles of drug design, development and synthesis.
- 2.6.** Properties of different pharmaceutical dosage forms including novel drug delivery systems.
- 2.7.** Principles of various instruments and techniques including sampling, manufacturing, packaging, labeling, storing and distribution processes in pharmaceutical industry.
- 2.8.** Principles of pharmacokinetics and biopharmaceutics with applications in therapeutic drug monitoring, dose modification and bioequivalence studies.
- 2.9.** Principles of hospital pharmacy including I.V. admixtures, TPN and drug distribution system,
- 2.10.** 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.
- 2.11.** 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.
- 2.12.** Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmacotherapeutic approaches.
- 2.13.** Pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra- indications, ADEs and drug

Program specifications for undergraduate 2015-2016

interactions.

- 2.14.** Principles of clinical pharmacology, pharmacovigilance and the rational use of drugs.
- 2.15.** Basis of complementary and alternative medicine.
- 2.16.** Toxic profile of drugs and other xenobiotics including sources, identification, symptoms, management control and first aid measures.
- 2.17.** Methods of biostatistical analysis and pharmaceutical calculations.
- 2.18.** Principles of management including financial and human resources.
- 2.19.** Principles of drug promotion, sales and marketing, business administration, accounting and pharmacoeconomics.
- 2.20.** Principles of proper documentation and drug filing systems.
- 2.21.** Regulatory affairs, pharmacy laws and ethics of health care and pharmacy profession.

3. Professional and Practical Skills

- 3.1.** Use the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.
- 3.2.** Handle and dispose chemicals and pharmaceutical preparations safely.
- 3.3.** Compound, dispense, label, store and distribute medicines effectively and safely.
- 3.4.** Extract, isolate, synthesize, purify, identify, and /or standardize active

Program specifications for undergraduate 2015-2016

substances from different origins.

- 3.5.** Select medicines based on understanding etiology and path physiology of diseases.
- 3.6.** Monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infections in biological specimens.
- 3.7.** Toxic profiles of different xenobiotics and detect poisons in biological specimens.
- 3.8.** Apply techniques used in operating pharmaceutical equipment and instruments.
- 3.9.** Maintain public awareness on rational use of drugs and social health hazards of drug abuse and misuse.
- 3.10.** Advise patients and other health care professionals about safe and proper use of medicines.
- 3.11.** Conduct research studies and analyze the results.
- 3.12.** Employ proper documentation and drug filing systems.

4. Intellectual Skills

- 4.1.** Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.
- 4.2.** Apply GLP, GPMP, GSP and GCP guidelines in pharmacy practice.
- 4.3.** Apply qualitative and quantitative analytical and biological methods

Program specifications for undergraduate 2015-2016

for QC and assay of raw materials as well as pharmaceutical preparations.

- 4.4. Uncover and control possible physical and/or chemical incompatibilities that may occur during drug dispensing.
- 4.5. Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.
- 4.6. Apply the principles of bio-informatics and computer-aided tools in drug design.
- 4.7. Apply various principles to determine the characteristics of biopharmaceutical products.
- 4.8. Select and assess appropriate methods of infection control to prevent infections and promote public health.
- 4.9. Utilize the pharmacological basis of therapeutics in the proper selection and use of drugs in various disease conditions.
- 4.10. Calculate and adjust dosage and dose regimen of medications.
- 4.11. Assess drug interactions, ADRs and pharmacovigilance.
- 4.12. Apply the principles of pharmacoeconomics in promoting cost/effective pharmacotherapy.
- 4.13. Analyze and interpret experimental results as well as published literature.
- 4.14. Analyze and evaluate evidence-based information needed in

Program specifications for undergraduate 2015-2016

pharmacy practice.

5. General and Transferable Skills

- 5.1.** Communicate clearly by verbal and means.
- 5.2.** Retrieve and evaluate information from different sources to improve professional competencies.
- 5.3.** Work effectively in a team.
- 5.4.** Use numeracy, calculation and statistical methods as well as information technology tools.
- 5.5.** Practice independent learning needed for continuous professional development.
- 5.6.** Adopt ethical, sales and safety guidelines.
- 5.7.** Develop financial, sales and market management skills.
- 5.8.** Demonstrate creativity and time management abilities.
- 5.9.** Implement writing and presentation skills.
- 5.10.** Implement writing and thinking, problem- solving and decision-making abilities.

IV.b Comparison of Faculty Programme with (NARS)

1-Attributes of the graduates

NARS	Faculty Programme
1-Handle chemicals and pharmaceutical products effectively and safely with respect to relevant laws and legislations	Meet with number 1: Be able to deal and handle chemicals, natural and pharmaceutical products effectively in a safe way and according to pharmacy law and legislations.
2- Capable of formulating, preparing pharmaceutical products from different sources and participating in systems for dispensing, storage and distribution of medications.	Meet with number 2 Formulate, prepare and dispense pharmaceutical products from different sources.
3- 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 3 and 4 3- 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. 4- Perform according to GLP and GPMP techniques and fulfill criteria to assure the quality of raw materials, procedures and pharmaceutical products.

Program specifications for undergraduate 2015-2016

NARS	Faculty Programme
4- Provide information and education services to community and patients about rational use of medications and medical services.	<p>Meet with number 16</p> <p>16-Educate patients and community about the proper and safe use of medications as well as risks of drugs abuse, radiation and different xenobiotics.</p>
5- Comprehend principles of pathophysiology of diseases and participate with other health care professionals in improving health care services using evidence- based data.	<p>Meet with number 5</p> <p>5- Comprehend principles of pathology of disease and participate with other health care professionals in improving health care services using evidence-based data.</p>
6- Plan, design and conduct research using appropriate methodologies.	<p>Meet with number 6</p> <p>6- Plan, design and conduct research using appropriate methodologies.</p>
7- Develop presentation, promotion, marketing, business administration, numeric and computation skills.	<p>Meet with number 7 and 13</p> <p>7- Have an appreciation for the business aspects of the profession; also be capable to develop presentation, promotion, marketing, business administration, numeric and computation skills.</p> <p>13- Present himself/herself in a professional manner.</p>

Program specifications for undergraduate 2015-2016

NARS	Faculty Programme
<p>8- Demonstrate capability of communication skills, time management, critical thinking, problem-solving, decision making and team working</p>	<p>Meet with number 8 and 18</p> <p>8- Demonstrate capability of communication skills, time management, critical thinking, and problem solving, decision making and team working.</p> <p>18- Recruit knowledge skills, experience and values to fulfill his / her obligation to educate and train the next generation of pharmacists.</p>
<p>9- Perform responsibilities in compliance with legal, ethical and professional rules.</p>	<p>Meet with number 9</p> <p>9- Perform responsibilities in compliance with legal, ethical and professional rules.</p>
<p>10- Able to be a life – long learner for continuous improvement of professional knowledge and skills.</p>	<p>Meet with number 10</p> <p>10- Upgrade his / her professional and scientific information by continuous learning for improving of professional knowledge and skills.</p>

2- Points of attributes of the graduates in our Faculty of Pharmacy, Assiut University Programme exceeding that of the NARS (2009):

<p>11- Keep attention to deal with expiry date and counterfeiting of drugs.</p> <p>14- Implement different professional skills throughout the professional career.</p> <p>15- Keen to perform at high moral at working place.</p> <p>17- Provide patients with information about medications and medical</p>
--

device emergencies.

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

NARS	Faculty Educational Programme ILOs
1. Knowledge and Understanding	
2.1	a1
2.2	a2
2.3	a6
2.4	a6
2.5	a6
2.6	a13
2.7	a3
2.8	a9
2.9	a12
2.10	a7
2.11	a8
2.12	a10
2.13	a9
2.14	a9
2.15	a5
2.16	a11
2.17	a14
2.18	a15

Program specifications for undergraduate 2015-2016

2.19	a18
2.20	a17
2.21	a16
-	a4
2. Professional and Practical Skills	
3.1	c4
3.2	c7
3.3	c1
3.4	c9
3.5	c5
3.6	c8, c13
3.7	c3, c10
3.8	c2
3.9	c14
3.10	c15
3.11	c11
3.12	c12
-	c6
3. Intellectual Skills	
4.1	b1, b2,b6
4.2	b13
4.3	b4
4.4	b5
4.5	b11
4.6	b3

Program specifications for undergraduate 2015-2016

4.7	b7
4.8	b12
4.9	b10
4.10	b9
4.11	b14
4.12	b7
4.13	b8
4.14	b8
-	b15
4. General and Transferable Skills	
5.1	d3
5.2	d1, d5
5.3	d8
5.4	d2
5.5	d7
5.6	d6
5.7	d11
5.8	d10
5.9	d3
5.10	d8
-	d4
-	d9

€- *The Educational Programme ILOs Exceeding the National Academic Reference Standards (NARS/2009)*

Faculty Educational Programme ILOs
a- Knowledge and understanding
a4. 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.
b- Intellectual Skills
b15. Survey laboratory investigation, identify organs, detect the presence of certain parasites and interpret the clinical and laboratory findings to define a proper diagnosis
c- Professional and Practical Skills
c6. Acquire skills in drug marketing and distribution system and effectively discuss application of drug properties with the medical profession.
d- General and Transferable Skills
d4. Provide emergency first aids.
d9. Provide good advice about balanced diet to promote the efficiency of medication and give hand in poisoning cases.

5- Comparison between curriculum structure of NARS and FPAU programme

Module	FPAU (%)	NARS (%)
Basic Sciences	15.2	10-15
Pharmaceutical Sciences	42.1	35-40
Medical Sciences	18.8	15-25
Pharmacy Practice	10.66	10-15
Health and Environmental Sciences	6.1	5-10
Behavioral and Social Sciences	2.03	2-4
Pharmacy Management	2.03	2-4
Discretionary (Elective)	3.05	Up to 8 %

V. Curriculum Structure and Contents:

V.a. Programme Duration: 5 years; in 10 semesters

(Number of courses = 61, Total Units = 197)

V.b. Programme Structure

Serial	Courses	No. of Units/Week:		Total (%)
		Lectures (Unit) ⁽¹⁾	Labs and tutorial (Unit) ⁽²⁾	
b. i	Basic Sciences	24	6	30 (15.2)
b.ii	Pharmaceutical Sciences (Specialized courses)	58	25	83 (42.1)
b. iii	Medical Sciences	28	9	37 (18.8)
b. iv	Pharmacy Practice	16	5	21 (10.66)
b. v	Health and Environmental Sciences	9	2	11 (5.6)
b. vi	Behavioral and Social Sciences	4	-	4 (2.03)
b. vii	Pharmacy Management	4	-	4 (2.03)
b.viii	Elective Courses	4	2	6 (3.05)
b.ix	Total Units	148	49	197
b. x	Practical / Field Training	--	300 hr	300 hr ⁽³⁾

(1): One hour = One Unit

(2): Two-Three hours = One Unit

(3): Hours of field training are not included in total No of hours

V.c. Comparison between curriculum structure of NARS and FPAU programme

code	Subject	Lectures	Lab/tutorial	Total (%)
<i>1-Basic Sciences</i>				
PBO-101	General Botany	5	1	6
PPC-115	Physical Chemistry	5	1	6
PIC-122	Inorganic Chemistry	5	1	6
PZO-108	Zoology	3	1	4
MTH-129	Mathematics and Principles of Statistics	2	-	2
POC-143	Organic Chemistry (Prep.+1 st years)	2 +3	1 +1	7
PPH-150	Physics and biophysics	4	1	5
	Total	24	6	30 (15.2 %)

2- Pharmaceutical Sciences

PHG	Pharmacognosy	9	4	13
PHC	Pharmaceutical Organic. Chemistry	9	3	12
PHC	Pharmaceutical Analytical Chemistry	8	4	12
PHA	Physical Pharmacy	5	2	7
PMI-371	Pharmaceutical Microbiology	2	1	3
PHA	Pharmaceutics	5	2	7
PHG	Chemistry of Natural Products	6	2	8
PHC	Medicinal Chemistry	8	4	12
PHI-522	Industrial Pharmacy	4	2	6
PHA-443	Biopharmacy and Principles of Pharmacokinetics	2	1	3
	Total unites	58	25	83 (42.1%)

Program specifications for undergraduate 2015-2016

3- Medical Sciences

code	Subject	Lectures	Lab/tutorial	Total
PAN-157	Anatomy	2	1	3
PHS-164	Histology	2	1	3
PPS-271	Physiology	4	-	4
PMI-329	General Microbiology & Immunology	2	1	3
PPA-378	Pathology	2	1	3
PPR-385	Parasitology	2	1	3
PCL-422	Pharmacology-1	6	2	8
PCL-464	Pharmacology-2			
PPC-429	Biochemistry-1	6	2	8
PCC-471	Biochemistry-2			
ENG-136	English Language and Terminology	2	-	2
	Total	28	9	37 (18.8%)

4- Behavioral and Social Sciences

PSY-178	Psychology	2	-	2
PHU-229	Human Rights	2	-	2
	Total	4	-	4 (2.03 %)

5- Pharmacy Practice

PHA-171	History of Pharmacy & Introduction to Pharmacy	2	-	2
PHA-201	Introduction to pharmaceutical Dosage form	3	1	4
PHA-501	Pharmacy Practice and Hospital Pharmacy	3	1	4
PHA-536	Clinical Pharmacy	3	1	4
PHA-336	Pharmacy Legislation	1	-	1
PHGE002	Complementary and alternative medicines (Applied Pharmacognosy)	4	2	6
	Total	16	5	21 (10.66 %)

6- Health and Environmental Sciences

PPU-436	Public Health	2	-	2
PCL-564	Bioassay and Biostatistics	3	1	4
PCL-529	Toxicology and Forensic chemistry	3	1	4
PFA-536	First Aid	1	-	1
	Total	9	2	11 (5.6%)

7- Pharmacy Management

PHA-478	Drug Marketing and Media	2	-	2
PAD-236	Pharmacy Administration	2	-	2
	Total	4	-	4 (2.03%)

Program specifications for undergraduate 2015-2016

8- Elective courses *				
PHAE001	Radio Pharmacy	2	1	3
PHGE002	Alternative Medicine	2	1	3
PHOCE003	New trends for Synthesis & Purification of Pharmaceutical raw Materials	2	1	3
PHACE004	Pharmaceutical Analysis & Quality Control	2	1	3
PHIE005	Pharmaceutical Manufacturing	2	1	3
PHME007	Drug Design	2	1	3
	Total	4	2	6 (3.05%)

* 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 2009) (Pharmacy Section).

V.c. Curriculum content:

1. Basic sciences

Represents 15.2 % of the total hours of the programme contents

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

2. Medical sciences

Represents 18.8 % of the total hours of the programme contents

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

3. Pharmaceutical sciences

Represents 42.1 % of the total hours of the programme contents

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.

4. Behavioral and Social Sciences

Represents 2.03 % of the total hours of the programme contents

Psychology and Human rights.

5. Pharmacy practice

Represents 10.66 % of the total hours of the programme contents

Program specifications for undergraduate 2015-2016

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

6. Health and Environmental sciences

Represents 5.6 % of the total hours of the programme contents

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

7. Pharmacy management

Represents 2.03 % of the total hours of the programme contents

Drug marketing and Media, Pharmacy administration

8. Elective courses

Represents 3.05 % of the total hours of the programme 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. a. Pre-pharmacy Year, First Term

1. Fundamental courses

Course code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
PBO-101	General Botany	5	1	a1, a4, a8, b4, c13, d1, d8, d10
PZO-108	Zoology	3	1	a1, b4, b8, b15, c2, c4, c13, d1, d8, d10
PPC-115 PIC-122	Physical Chemistry and Inorganic Chemistry	3 2	1 1	a1, a2, a4, b3, b4, b5, c7, d8, d10

2. Complementary courses

Course code	Course Title	Units/Week		Programme ILOs Covered (No.)
		Lecture	Practical	
MTH-129	Mathematics and statistics	2	-	a1, a14, b8, d1, d8, d10
ENG-136	English Language and Terminology	2	-	a15, a16, b8, c4, c6, d1, d8

VI.b. Pre-pharmacy Year, Second Term

1. Fundamental courses

Coursecode	CourseTitle	Units/Week		ProgrammeILOsCovered (No.)
		Lecture	Practical	
POC-143	Organic Chemistry	2	1	a1,a2,b3,b4, c7, d8, d10
PPH-150	Physics	4	1	a1, a3,a8,b4,d1, d8, d10
PAN-157	Anatomy	2	1	a1,b2, c13,d3,d6, d8, d10
PHS-164	Histology	2	1	a1,a4, b2, b15, c2,c13, d8, d10

2. Complementary courses:

Corse code	CourseTitle	Units/Week		ProgrammeILOsCovered (No.)
		Lecture	Practical	
PHA-171	History of Pharmacy and introduction to pharmacy	2	-	a1,d7,a12,a13,a16,b6,c4,c15,d3,d10
PSY-178	Psychology	2	-	a1,c14, d3,d10

VI.c. First Year Pharmacy, First Term

1. Fundamental courses

Course code	CourseTitle	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-201	Introduction to pharmaceutical dosage forms	3	1	a1, a3, a14, b5, c1, c2, c12, d1, d2, d3,d6, d7, d10
PHG-208	Pharmacognosy-1	2	1	a1, a4, b1, b4, c4, c9, d1, d8, d10
PHC-215	Pharmaceutical Organic Chemistry-1	3	1	a1, a6, b3, c7, d1, d8,d9 , d11
PHC-222	Pharmaceutical Analytical Chemistry-1	2	1	a1, a2, b11, c7, d1, d8, d10
PPS-271	Physiology	4	-	a1, a8, b2, d1, d7,d10

VI.d. First Year Pharmacy, Second Term

1. Fundamental courses

Coursecode	CourseTitle	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-243	Physical Pharmacy-1	3	1	a1, a2, b1, b6, b9, c1, c2, d3, d7,d8,d10
PHG-250	Pharmacognosy-2	2	1	a1,a3, a4, b1, b4, c4, c9, c14, d1, d8, d10
PHC-257	Pharmaceutical Organic Chemistry-2	3	1	a1, a6, b3, b11, c7, d1, d7, d8, d10
PHC-264	Pharmaceutical Analytical chemistry-2	2	1	a1, a2, b11, c7, d1, d7, d8, d10

2. Complementary courses

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PAD-236	Pharmacy administration	2	-	a1, a15, a18, b8, c6, c12, d1, d7, d10, d11
PHU-229	Human rights	2	-	a1, a16, b8, c11, d1, d7, d8

VI.e. Second Year Pharmacy, First Term

1. Fundamental courses

Coursecode	Course Title	Units/Week		Programme ILOsC (Matrix)
		Lecture	Practical	
PHA-301	Physical Pharmacy-2	2	1	a1, a2, b5, b13, c3, d7, d8, d10
PHG-308	Pharmacognosy-3	3	1	a1, a4, b1, b4, b14, c4, c9, d1, d8, d10
PHC-315	Pharmaceutical Organic Chemistry-3	3	1	a1, a6, b3, b11, c7, d7, d8, d10
PHC-322	Applied Pharmaceutical and Instrumental analysis-1	2	1	a1, a3, a6, b4, b14, c7, d1, d7, d8, d10
PMI-371	General & Pharmaceutical Microbiology	2	1	a1, a7, a11, a13, b11, b12, c2, c8, d10

2. Complementary courses

Coursecode	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-336	Pharmacy legislation	1	-	a1, a16, d6, d10

VI.f. Second Year Pharmacy, Second Term

1. Fundamental courses

Coursecode	CourseTitle	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-343	Pharmaceutics-1	2	1	a1, a3, b1, b6, b9, c1, d1, d7, d8, d10
PHG-350	Pharmacognosy-4	2	1	a1, a4, b1, b4, b14, c3, c4, c9, d1, d8, d10
PHC-357	Pharmaceutical Organic Chemistry-4	3	1	a1, a6, b3, b11, c7, d1, d8, d9, d10
PHC-364	Applied pharmaceutical and Instrumental <i>analysis</i> - 2	2	1	a1, a6, b4, c2, d1, d7, d8, d10
PMI-329	Medicinal Microbiology and Immunology	2	1	a1, a7, a10, b11, b12, c2, c8, d8, d10
PPA-378	Pathology	2	1	a1, a8, a10, b7, c4, d1, d7, d8, d10
PPR-385	Parasitology	2	1	a1, a4, a7, a10, b1, b12, b15, c2, c8, d1, d7, d9, d11

VI. g. Third Year Pharmacy, First Term

1. Fundamental courses:

Coursecode	Course Title	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-401	Pharmaceutics-2	3	1	a1, a2, a3, b1, b6, c1, d1, d8, d10
PHG-408	Chemistry of Natural Products-1	3	1	a1, a5, a6, b4, b11, c2, c7, c9, d1, d7, d8, d10
PHC-415	Medicinal Chemistry-1	2	1	a2, a6, a8, b4, b11, c7, c11, d1, d7, d8, d10
PCL-422	Pharmacology-1	3	1	a1, a9, a11, b1, b2, b10, b13, c3, d2, d8, d9, d10
PBC-429	Biochemistry-1	3	1	a1, a3, a6, a8, b4, c2, d1, d6, d8

2. Complementary courses

Coursecode	Course Title	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PPU-436	Public health	2	-	a1, a7, a10, b12, c8, d7, d8, d9, d10

VI. h. Third Year Pharm

acy, Second Term

1. Fundamental courses

Coursecode	CourseTitle	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-443	Biopharmacy and principles of pharmacokinetics	2	1	a2, a3, a9, a14, b1, b5, b7, c11, c12, d1, d7, d8, d10
PHG-450	Chemistry of Natural Products-2	3	1	a1, a5, a6, b4, b11, b14, c2, c7, c9, d1,d8, d7, d10
PHC-457	Medicinal Chemistry-2	2	1	a2, a6, a8, b3, b4, b7, b11, c7, c9, c11, d1, d8, d10
PCL-464	Pharmacology-2	3	1	a9, a11, a12, b1, b10, b14, c3, c5, c10, c12, d1, d3, d5, d6, d8
PBC-471	Biochemistry-2	3	1	a1, a8, a10,b15, c2, c7, d1, d5, d8, d9, d10

2. Complementary courses

Course code	Course Title	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-478	Drug marketing and Media	2	-	a15, a18, b8, c12, d10, d11

- At the end of the third year (semester 8) each student must achieve 300 hours practical/field training in a pharmacy or at any company for drug manufacture

Program specifications for undergraduate 2015-2016

- Each students has a guide book, this book containing:
 1. Specification and ILOs of the practical/field training.
 2. Knowledge about drugs, drug-drug interactions, good and ideal nutrition, first aids and how to deal with community and non-educated patients.
 3. Approval sheet for evaluation of student at the end of training.
- At the beginning of semester 9 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	300 hour	a9, a10, a11, a16 ,a18, b2, b10, b13, b14, c1, c4, c5, c6, c12, c15, d1, d3, d4, d6, d9, d11

VI. i. Fourth Year Pharmacy, First Term

1. Fundamental courses

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PHA-501	Pharmacy Practice and Hospital Pharmacy	3	1	a12, a16, b1, b8, b9, b10, b13, c4, c5, c7, c11, c12, d1, d2, d3, d6, d7, d8, d10
PHG-508	Applied Pharmacognosy-1	2	1	a6, b4, b11, c2, c11, d1, d7, d8, d10
PHC-515	Medicinal Chemistry-3	2	1	a2, a6, a8, a9, b3, b4, b7, b11, c2, c7, c9, c11, d1, d7, d8, d10
PHI-522	Industrial Pharmacy-1	2	1	a1, a3, b11, c1, c2, c11, d1, d7, d8, d10
PCL-529	Toxicology and Forensic chemistry	3	1	a7, a8, a11, b14, c3, c10, c11, d8, d9, d10
PHXE00Y	Elective courses	2	1	See page 49

2. Complementary courses

Course code	Course Title	Units/Week		Programme ILOs Covered (Matrix)
		Lecture	Practical	
PFA-536	First aids	1	-	a8, a11, b2, c8, d4, d9, d10

VI. k. Fourth Year Pharmacy, Second Term

1. Fundamental courses

CourseCode	CourseTitle	Units/Week		ProgrammeILOsCovered (Matrix)
		Lecture	Practical	
PHA-543	Clinical Pharmacy	3	1	a3, a10, a12, a16, a17, a18, b1, b2, b8, b9, b13, b14, c3, c4, c5, c7, c11, c12, d1, d2, d3, d5, d6, d7, d8, d10
PHG-550	Applied Pharmacognosy-2	2	1	a5, a6, a13, b1, b4, b8, b11, b14, c2, c3, c5, c9, c11, d1, d3, d7, d8, d10
PHC-557	Medicinal Chemistry-4	2	1	a2, a6, a8, a9, b3, b4, b7, b11, c2, c7, c9, c11, d1, d7, d8, d10
PHC-564	Industrial Pharmacy-2	2	1	a1, a13, b6, b11, c1, c7, c11, d1, d7, d8, d10
PCL-564	Bioassay and Biostatistics	3	1	a6, a14, b4, c2, c9, c10, d8, d10,
PHXE00Y	Elective courses	2	1	See page 49

VI. I. Elective courses

Course code	Course title	Units/Week		Programme ILOs Covered (Matrix)
		lecture	Practical/tutorial	
PHAE001	Radio pharmacy	2	1	a1, a3,a6, a9, a12, b1, b2, b3, b4, c1,c2, d1
PHGE002	Alternative medicine	2	1	a5, b1, c1, c5, c9, d3, d7, d9,
PHOCE003	New trends for synthesis & purification of pharmaceutical raw materials	2	1	a1, a6, b1, b3, c2, c6, c9, c11, d1, d8, d12, d13, d14.
PHACE004	Pharmaceutical analysis & quality control	2	1	a1, a3, a6, b4, b14, c2, c7, d1, d9, d12.
PHIE005	Pharmaceutical manufacturing	2	1	a1, a3, a13, b6, b11, b13, c1, c2, c7, c11, d1, d9, d12
PHME007	Drug Design	2	1	a2, a6, a11, b7, b11, c7, c9, c11, d9, d12, d13

VII-Program admission requirements

- 1- 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 defined regulations.
- 2- 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 defined regulations.

VIII-Regulations for progression and programme completion

- 1- Pharmacy students spend five educational years, divided on ten terms (each of 15 weeks). Assessment is carried out through written exams at the end of semester. Midterm, oral and practical exams are held during or at the end of the semester.
- 2- Student must attend lectures and lab. classes. Attendance of the lab. classes must be not less than 75% of the total number of the lab. classes.
- 3- Student who does not fulfill this requirement is exempted from the

Program specifications for undergraduate 2015-2016

written exam according to the Faculty Council decision.

- 4- Course grades areas follows:
 - 85% or more of MG: Excellent.
 - 75% to less than 85% of MG: Very Good.
 - 65% to less than 75% of MG: Good.
 - 60% to less than 65% of MG: Pass for fundamental courses.
 - 50% to less than 65% of MG: Pass for complementary courses.
 - 30% to less than 60% of MG: weak for fundamental courses.
 - 30% to less than 50%: weak for complementary courses.
 - Less than 30% of the written exam: very weak.
- 5- Student can proceed to the next year if they pass all courses.
- 6- 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.
- 7- 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 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.
- 8- Student is given two opportunities of enrollment as regular

Program specifications for undergraduate 2015-2016

student in the exams of pre-pharmacy year after which he/she is not allowed to be enrolled as external student.

- 9-** 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.
- 10-** 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 3 times.
- 11-** Student in the fourth professional year is given two opportunities of enrolment as regular student, but if he/she passed half the number of subjects they would be allowed in definite chance to resit for the exams in the subjects they have failed until they are graduated.
- 12-** Once an "external" student in a certain level passes exams for that level, he/she is automatically reregistered as a "regular" student in the following level.
- 13-** 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 marks of the written exams.
- 14-** The final grade for bachelor degree depends upon the cumulative scores of student in the fifth years.
- 15-** Student must apply field training in pharmaceutical location for not less than 300 hours during the summer vacation after the third year and each student must have certificate from the training location

Program specifications for undergraduate 2015-2016

for his/her training.

- 16-** Summer training is assessed as a component of the laboratory course of Pharmacy Practice and Hospital Pharmacy (PHA-501)
- 17-** Final year students are encouraged to carry out scientific excursion to some Pharmaceutical Factories according to regulations. Faculty Students Affairs Committee and the Faculty Council are concerned with the regulations.

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 (4 th year)	Questionnaire and meetings	9 12	2012 2013
Alumni	Questionnaire and meetings	9 12	2012 2013
Stakeholders	Questionnaire and meetings	9 12	2012 2013
Internal and external evaluation	Reviewing		22/9/2012 30/12/2013
Simulation visit (AUQAC)	Reviewing	-	6/2/2013 31/3/2013 24/10/2013 21/11/2013
ISO 2008/9001	Reviewing	-	12/12/2012



**XI- Intended Learning
Outcomes (ILOs)
Matrix**

2-First Year Pharmacy

Skills/Course		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									
First Semester																																																																					
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																																																																					
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	*											*	*						*																		*	*		*	*	*	*																									

Program specifications for undergraduate 2015-2016

3-SecondYear Pharmacy

Skills/Course		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	General and 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	Medical Microbiology and Immunology	*				*		*														*	*			*		*		*					*		*		*											*		*										*								*													
PPA-378	Pathology	*					*	*														*			*			*		*					*		*		*									*		*										*								*															
PPR-385	Parasitology	*		*		*	*											*				*			*		*	*		*					*		*		*								*		*								*	*	*																								

4- Third Year Pharmacy

Skills/Course		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					
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-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	12	13	14	15	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												*	*					*				*			*				*												*											*				*	*							

5- Fourth Year Pharmacy

Skills/Course		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-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 Aids					*		*		*						*					*						*									*				*			*	*	*		*	*	*																								
#	Elective Course																																																																								
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-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																																																																								

6- Elective courses

See pages 48 & 50