Bachelor of Pharmacy

Program Report

(2017 – 2018)

Prepared by

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Teaching Institution: Faculty of Pharmacy, Zagazig University, Egypt

Awarding Institution: Zagazig University

Degree Award : Bachelor of Pharmacy

Length and Mode : **5** years; full- time

Program Coordinator: Prof. Ghada Shaker
Vice Dean for Education and Students Affairs

A- Basic Information:

1- **Program Title:** Bachelor of Pharmacy

2- **Program Type:** single

3- **Number of Courses: 63**

4- **Departments:**

a- Departments affiliated to faculty of pharmacy:

- Department of Analytical Chemistry
- Department of Biochemistry
- Department of Pharmaceutics
- Department of Medicinal Chemistry
- Department of Microbiology & Immunology
- Department of Pharmaceutical Organic Chemistry
- Department of Pharmacognosy
- Department of Pharmacology & Toxicology
- Department of Pharmacy Practice

b- Departments not affiliated to faculty of pharmacy:

- Histology and Anatomy departments (Faculty of Medicine)
- Mathematics department (Faculty of Science)
- English Language department (Faculty of Education)
- Accounting & Pharmacy Administration department (Faculty of Commerce)
- Human Rights department (Faculty of Law)
- Psychology department (Faculty of Education)

5- **Co-coordinator:**

- Prof. Ghada Shaker "Vice dean for Education and Student affairs"

6- External evaluator: Prof. Mahmoud Bakr Al-Ashmawi, Department of Pharmaceutical Chemistry, Mansoura University

B- Statistics:

1. **No. of students admitting the program (2013 - 2014):** 1003
2. **No. of students admitting the program this year (2017 – 2018):** 750

% decrease = 25.22 %

The process of application, selection and approval for admission is carried out through a central national admission office supervised by the MOHE. The number of enrolled students is determined annually by the SCU.

No. and percentage of students passing in each year/level/Semester:

Year	No. admitted	No. passing the exam.	Percentage
1st year	1003	729	72.7%
2nd year	985	654	67%
3rd year	744	711	95.6%
4th year	843	783	93%
5th year	851	811	95.3%

3. **No. of students completing the program and as a percentage of those who started:**

No. of students admitted to the program (2013 – 2014)	No. of students completed the program (2017-2018)	% of students completed the program
1003	811	80.9 %

4. **Grades: no. and percentage of each grade:**

Year	Grade					Total	Total (pass)
	Excellent	Very Good	Good	Pass	Fail		
1st year	61	314	326	28	274	1003	729
	6.1%	31.3%	32.5%	2.8%	27.3%	100%	72.7%

Year	Grade					Total	Total (pass)
	Excellent	Very Good	Good	Pass	Fail		
2nd year	23	151	368	112	331	985	654
	2%	15%	37%	13%	33%	100%	67%

Year	Grade					Total	Total (pass)
	Excellent	Very Good	Good	Pass	Fail		
3rd year	73	293	294	51	33	744	711
	9.8%	39.4%	39.5%	6.9%	4.4	100%	95.6%

Year	Grade						Total	Total (pass)
	Excellent	Very Good	Good	Pass	Fail	Incomplete		
4th year	50	290	342	102	32	27	843	783
	6%	34.4%	40.6%	12%	3.8%	3.2%	100%	93%

Year	Grade						Total	Total (pass)
	Excellent	Very Good	Good	Pass	Fail	Incomplete		
5th year	88	426	287	10	15	25	851	811
	10.3%	50%	33.7%	1.2%	1.8	3%	100%	95.3%

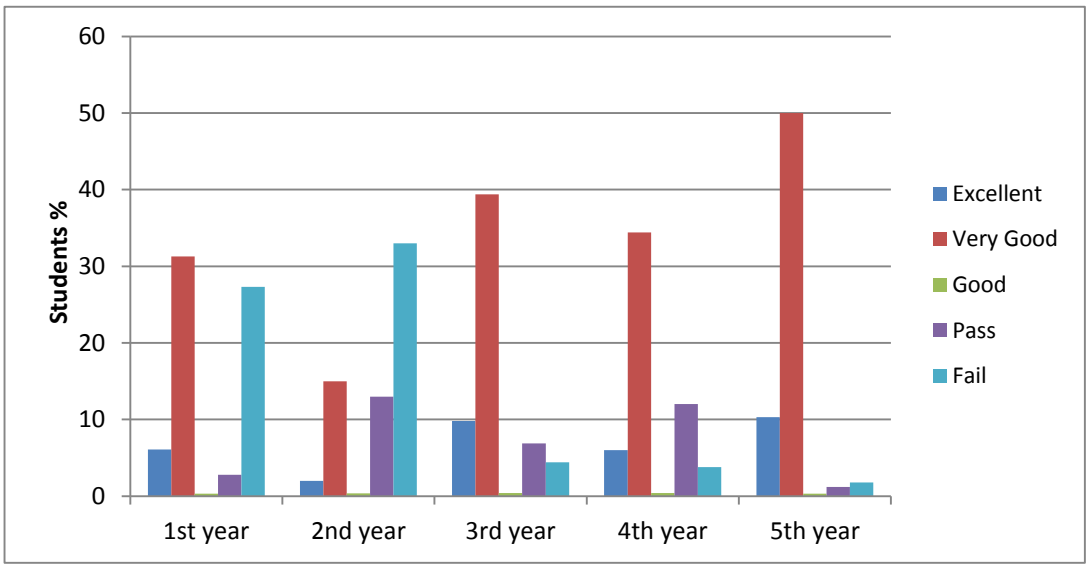
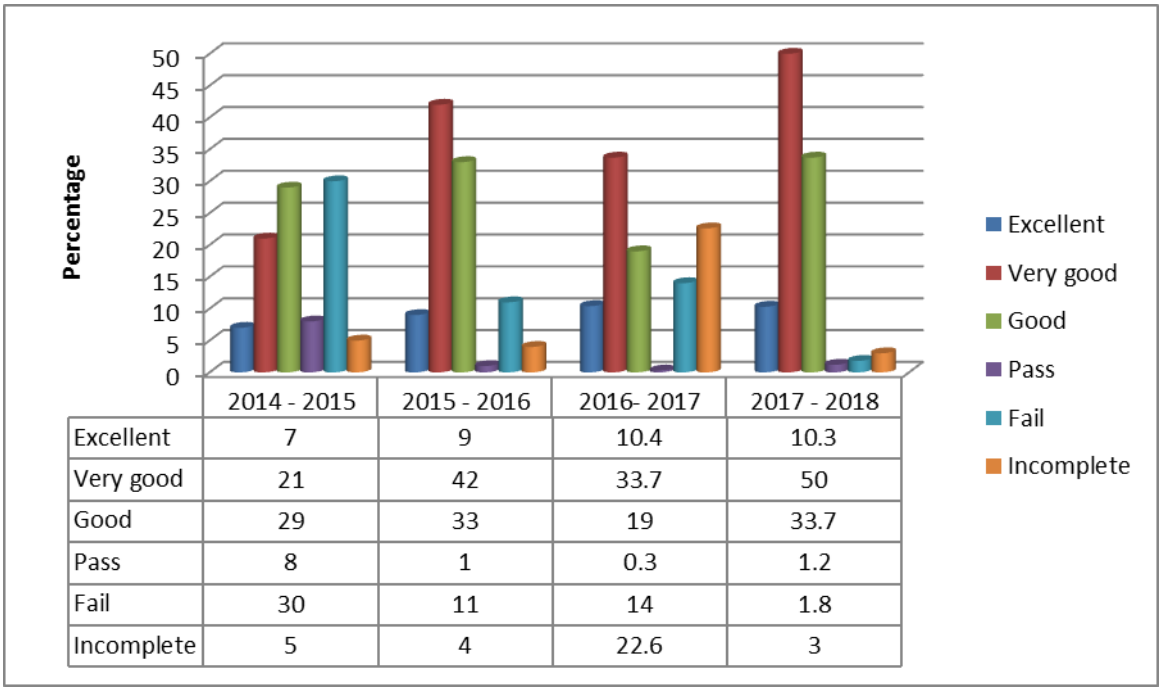


Fig. 1: Follow up of students' progress along the five years of the program.



	2014 - 2015	2015 - 2016	2016- 2017	2017 - 2018
Excellent	7	9	10.4	10.3
Very good	21	42	33.7	50
Good	29	33	19	33.7
Pass	8	1	0.3	1.2
Fail	30	11	14	1.8
Incomplete	5	4	22.6	3

Fig. 2: Comparison between the grades of graduates along the past 4 years

This figure shows significant improvement in 5th students' grades when compared to the past 4 years. This result may be explained by the application of new teaching methods and the modernization of courses contents to cope with market needs.

C- Professional Information:

Academic Standards:

1. Achievement of Program Intended learning Outcomes.

The following table presents the courses taught in Bachelor of Pharmacy program and the covered ILOs through the courses`:

National Academic Reference Standards (NARS)	Program ILOS	Course (s) covering ILOs`
2-1 Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A1	• General and Physical Chemistry • Pharmaceutical Organic Chemistry-1 • Botany and Medicinal Plants • Analytical chemistry-1 • English and Medical Terms • Principles of Math. And Statistics • Pharmaceutical Organic Chemistry-2 • Analytical chemistry-2 • Analytical chemistry-3 • Pharmaceutical Organic Chemistry-3 • Analytical chemistry-4 • Pharmaceutical Organic Chemistry-4 • Production of Raw Materials
	A2	• Pharmaceutics-1 • Pharmaceutics-2 • Pharmacognosy-1 • Pharmaceutics-3 • General Microbiology & Immunology • Pharmacognosy-2 • Pharmaceutics-4 • Pharmaceutical Microbiology • Biopharmaceutics & Pharmacokinetics • Phytochemistry-1 • Phytochemistry-2 • Chromatography of Natural Products • Medicinal Chemistry-1 • Bioassay1 • Biotechnology of Natural Products • Medicinal Chemistry-2 • Bioassay2 • Pathology and Parasitology • Industrial Pharmacy-1 • Applied Pharmacognosy • Industrial Pharmacy-2 • Phytotherapy

	A3	• Histology and Anatomy • Physiology • Biochemistry-1 • Biochemistry-2 • Medical Microbiology • Biotechnology • Pharmacology-2 • Clinical Nutrition
	A4	• Human Rights and Professional Ethics • Psychology
	A5	• Accounting and pharmaceutical business administration
	A6	• Medical Microbiology • Toxicology-1 • Toxicology-2
	A7	• Hospital and Clinical Pharmacy • Community Pharmacy • Phytotherapy
2-2 Physico-chemical properties of various substances used in preparation of medicines including inactive and active ingredients as well as biotechnology and radio- labeled products.	A8	• General and Physical Chemistry • Pharmaceutics-2 • Pharmacognosy-1 • Pharmaceutics-3 • Pharmaceutics-4 • Pharmaceutical Microbiology • Biopharmaceutics & Pharmacokinetics • Phytochemistry-2 • Toxicology-1 • Toxicology-2 • Drug Design
	A9	• Pharmaceutical Microbiology • Biotechnology of natural products
	A10	• Hospital and Clinical Pharmacy • Quality Control
2-3 Principles of different analytical techniques using GLP guidelines and validation procedures.	A11	• Analytical chemistry-1 • Analytical chemistry-2 • Analytical chemistry-4 • Pharmaceutical Organic Chemistry-4 • Chromatography of natural products • Applied pharmacognosy-1 • Medicinal chemistry- 4 • Quality control
	A12	• Applied pharmacognosy-1 •
2-4 Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	A13	• Pharmaceutics-1 • Pharmacognosy-2 • Phytochemistry-2 • Quality Control • Drug Design
	A14	• Pharmaceutical Microbiology • Analytical chemistry-3 • Analytical chemistry-4 • Bioassay-1

		• Bioassay-2
2-5 Principles of drug design, development and synthesis.	A15	• Pharmaceutical Organic Chemistry-1 • Medicinal Chemistry-4 • Drug design •
	A16	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Pharmaceutical Organic Chemistry-3 • Pharmaceutical Organic Chemistry-4 • Pharmacognosy2 • Production of Raw Materials • Medicinal Chemistry-1 • Medicinal Chemistry-2 • Medicinal Chemistry-3 • Medicinal Chemistry-4 • Drug Design
2-6 Properties of different pharmaceutical dosage forms including novel drug delivery systems.	A17	• Pharmaceutics-1 • Pharmaceutics-3 • Analytical chemistry-4 • Pharmaceutics-4 • Sterile Products and Controlled Drug Delivery Systems • Applied Pharmacognosy-2 • Summer training
	A18	• Sterile Products and Controlled Drug Delivery Systems • Drug design • Summer training
2-7 Principles of various instruments and techniques including sampling, manufacturing, packaging, labeling, storing and distribution processes in pharmaceutical industry	A19	• Pharmaceutics 3 • Pharmaceutics 4 • Sterile Products and Controlled Drug Delivery Systems • Industrial pharmacy 1 • Industrial pharmacy 2 • Histology and anatomy •
2-8 Principles of pharmacokinetics and biopharmaceutics with applications in therapeutic drug monitoring, dose modification and bioequivalence studies.	A20	• Drug Design • Sterile Products and Controlled Drug Delivery Systems • Medicinal Chemistry-4 • summer training •
2-9 Principles of hospital pharmacy including I.V. admixtures, TPN and drug distribution system	A21 A22	• Hospital and Clinical Pharmacy • Community Pharmacy • summer training
2-10 Principles of public health issues including sources and control of microbial contamination as well as sanitation, disinfection, sterilization	A23	• Toxicology-1 • Pharmaceutical Microbiology •
	A24	• General Microbiology & Immunology • Pharmaceutical Microbiology •

methods and microbiological QC of pharmaceutical products.	A25	• Pharmaceutical Microbiology •
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	A26	• Biochemistry I • Physiology • Medical Microbiology • Clinical Biochemistry • Clinical Nutrition • Pathology and parasitology
	A27	• Toxicology-2 • Clinical Biochemistry-1 • Biochemistry 2 • Biochemistry I • Physiology
	A28	• General Microbiology & Immunology • Histology and Anatomy • Biochemistry-2 • Clinical Biochemistry-2 • Biotechnology of Natural Products
2-12Etiology, epidemiology, laboratory diagnosis and clinical features of different diseases and their pharmaco-therapeutic approaches	A29	• Histology and Anatomy • Physiology • Biopharmaceutics & pharmacokinetics • Pharmacology-1 • Pharmacology-2 • Pharmacotherapy • Medical Microbiology • Microbiology-4 • Clinical Biochemistry • Hospital and Clinical Pharmacy-2 • Pathology and Parasitology • Clinical Pharmacology • Clinical Nutrition
	A30	• Physiology • Biochemistry I • Biopharmaceutics & pharmacokinetics • Pharmacology-1 • Pharmacotherapy • Biotechnology • Clinical Biochemistry-1 • Pathology and Parasitology • Clinical Pharmacology • Summer training
	A31	• Pharmacology-1 • Pharmacology-2 • Pharmacotherapy • Biotechnology • Bioassay-1 • Community Pharmacy • Bioassay-2 • Clinical Pharmacology
2-13 Pharmacological properties of drugs including mechanisms of	A32	• Pharmacognosy-1 • Phytochemistry-2

action, therapeutic uses, dosage, contra-indications, ADRs and drug interactions.		• Pharmacology-2 • Pharmacotherapy • Chromatography of Natural Products • Medicinal Chemistry-1 • Medicinal Chemistry-2 • Medicinal Chemistry-3 • Applied Pharmacognosy-2
2-14 Principles of clinical pharmacology, pharmacovigilance and the rational use of drugs.	A33	• Pharmacology-1 • Clinical Pharmacology
2-15 Basis of complementary and alternative medicine	A34	• Chromatography of Natural Products • Applied Pharmacognosy-2 • Clinical Nutrition
2-16 Toxic profile of drugs and other xenobiotics including sources, identification, symptoms, management control and first aid measures	A35	• Bioassay-2
	A36	• Pharmaceutics-1
2-17 Methods of biostatistical analysis and pharmaceutical calculations	A37	• Principles of Math. And Statistics • Bioassay-2 • Summer training
	A38	• Medicinal Chemistry-4 • Quality Control • Pharmaceutics-1 • Analytical chemistry-3 • Analytical chemistry-4 • Biopharmaceutics & Pharmacokinetics • Summer training
2-18 Principles of management including financial and human resources.	A39	• Accounting & Business Administration
2-19 Principles of drug promotion, sales and marketing, business administration, accounting and pharmacoeconomics.	A40	• Drug Marketing and Communication Skills •
	A41	• Accounting & Business Administration
2-20 Principles of proper documentation and drug filing systems.	A42	• Pharmaceutics-4
2-21 Regulatory affairs, pharmacy laws and ethics of health care and pharmacy profession	A43	• Pharmaceutics-4 • Human Rights
3-1 Use the proper pharmaceutical and medical terms and abbreviations and symbols in pharmacy practice.	B1	• Histology and Anatomy • General Microbiology & Immunology • Pharmaceutical Microbiology • Physiology • Community Pharmacy • Biotechnology of Natural Products

		• Pathology and Parasitology • Applied Pharmacognosy-1 • Applied Pharmacognosy-2 • Botany and Medicinal Plants • Pharmaceutics-1 • English and Medical Terms • Summer training
3-2 Handle and dispose chemicals and pharmaceutical preparations safely	B2	• General and Physical Chemistry • Pharmaceutical Organic Chemistry-1 • Botany and Medicinal Plants • Analytical chemistry-1 • Analytical chemistry-2 • Analytical chemistry-3 • Analytical chemistry-4 • Pharmaceutical Organic Chemistry-2 • Pharmaceutical Organic Chemistry-3 • Pharmaceutical Organic Chemistry-4 • General Microbiology & Immunology • Pharmaceutical Microbiology • Phytochemistry-1 • Biochemistry-1 • Medical Microbiology • Production of Raw Materials • Phytochemistry-1 • Phytochemistry-2 • Biochemistry-2 • Biotechnology • Hospital and Clinical Pharmacy • Chromatography of Natural Products • Medicinal Chemistry-1 • Clinical Biochemistry-1 • Bioassay-1 • Bioassay-2 • Toxicology-1 • Biotechnology of Natural Products • Medicinal Chemistry-2 • Pharmacognosy-1 • Pharmacognosy-2 • Pharmaceutics-3 • Pharmaceutics-4 • Pathology and Parasitology • Applied Pharmacognosy-1 • Applied Pharmacognosy-2 • Summer training
	B3	• Pharmaceutics-1 • Pharmaceutics-3 • Pharmaceutics-4 • Hospital and Clinical Pharmacy • Quality Control
3-3 Compound, dispense, label, store and distribute medicines effectively and safely	B4	• Pharmaceutics-3 • Pharmaceutics-4 • Biopharmaceutics & Pharmacokinetics • Sterile Products and Controlled Drug Delivery Systems

		• Hospital and Clinical Pharmacy • Industrial Pharmacy-2 • Summer training
3-4 Extract, isolate, synthesize, purify, identify, and/or standardize active substances from different origins.	B5	• General and Physical Chemistry • Pharmaceutics-1 • Analytical chemistry-1 • Analytical chemistry-2 • Pharmacognosy-1 • Pharmacognosy-2 • Phytochemistry-1 • Biochemistry-1 • Phytochemistry-2 • Chromatography of Natural Products • Quality Control
	B6	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Analytical chemistry-2 • Pharmaceutical Organic Chemistry-3 • Pharmaceutical Organic Chemistry-4 • Production of Raw Materials • Medicinal Chemistry-1 • Medicinal Chemistry-2 • Medicinal Chemistry-3
	B7	• Analytical chemistry-3 • Analytical chemistry-4 • Pharmaceutical Microbiology
3-5 Select medicines based on understanding of etiology and pathophysiology of diseases	B8	• Pharmacology-1 • Pharmacology-2 • Community Pharmacy • Toxicology-2 • Clinical Pharmacology • Clinical Nutrition • Pharmacotherapy
3-6 Monitor and control microbial growth and carry out laboratory tests for identification of infectious and non-infectious diseases.	B9	• General Microbiology & Immunology • Biotechnology of Natural Products
	B10	• General Microbiology & Immunology • Biochemistry-1 • Medical Microbiology • Biochemistry-2 • Biotechnology • Clinical Biochemistry-1 • Pathology and Parasitology • Clinical Nutrition
3-7 Assess toxicity profiles of different xenobiotics and detect poisons in biological specimens	B11	• Toxicology-1
	B12	• Toxicology-1 • Applied Pharmacognosy-2
3-8 Apply techniques used in operating pharmaceutical equipment and instruments	B13	• Pharmaceutics-2 • Analytical chemistry-4 • Bioassay-1 • Bioassay-2 • Industrial Pharmacy-1 • Medicinal Chemistry-4

3-9 Maintain public awareness on rational use of drugs and social health hazards of drug abuse and misuse.	B14	• Pharmaceutical Microbiology • Pharmacology-1 • Toxicology-2 • Clinical Pharmacology • Summer training
3-10 Advise patients and other health care professionals about safe and proper use of medicines	B15	• Hospital and Clinical Pharmacy • Community Pharmacy •
3-11 Conduct research studies and analyze the results	B16	• Pharmacognosy-1 • Histology and Anatomy • Phytochemistry-1 • Phytochemistry-2 • Chromatography of Natural Products • Medicinal Chemistry-1 • Toxicology-1 • Medicinal Chemistry-2 • Toxicology-2
	B17	• Applied Pharmacognosy-1 • Medicinal Chemistry-3 • Advanced Pharmacology • Pharmacotherapy • Research Project • Applied Pharmacognosy-2 • Medicinal Chemistry-4 • Pharmacotherapy • Drug Design • Summer training
3-12 Employ proper documentation and drug filing systems	B18	• Advanced Pharmacology • Summer training
4-1 Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.	C1	• Pharmaceutics-1 • Pharmaceutics-3 • General Microbiology & Immunology • Pharmaceutics-4 • Pharmaceutical Microbiology • Sterile Products and Controlled Drug Delivery • Hospital and Clinical Pharmacy • Summer training
	C2	• Sterile Products and Controlled Drug Delivery • Summer training
4-2 Comprehend and apply GLP,GPMP, GSP and GCP guidelines in pharmacy practice	C3	• Pharmacognosy-2 • Pharmaceutical Microbiology • Medicinal Chemistry-1 • Clinical Biochemistry • Medicinal Chemistry-2 • Applied Pharmacognosy-1 • Medicinal Chemistry-3 • Industrial Pharmacy-2 • Applied Pharmacognosy-2 • Medicinal Chemistry-4 • Quality Control • Summer training

4-3 Apply qualitative and quantitative analytical and biological methods for QC and assay of raw materials as well as pharmaceutical preparations	C4	• General and Physical Chemistry • Analytical chemistry-1 • Analytical chemistry-2 • Analytical chemistry-3 • Pharmacognosy-1 • Analytical chemistry-4 • Pharmacognosy-2 • Phytochemistry-1 • Biochemistry-1 • Phytochemistry-2 • Biochemistry-2 • Chromatography of Natural Products • Medicinal Chemistry-1 • Clinical Biochemistry • Medicinal Chemistry-2 • Applied Pharmacognosy-1 • Medicinal Chemistry-3 • Quality Control
	C5	• pharmaceutics-1 • pharmaceutics-2 • Sterile Products and Controlled Drug Delivery • Medicinal chemistry-3 • Medicinal chemistry-4 • Quality Control • Drug Design • Medicinal Chemistry-1 • Bioassay-1 • Medicinal Chemistry-2 • Bioassay-2
4-4 Recognize and control possible physical and/or chemical incompatibilities that may occur during drug dispensing	C6	• Pharmacotherapy • Sterile Products and Controlled Drug Delivery •
4-5 Select the appropriate methods of isolation, synthesis, purification, identification, and standardization of active substances from different origins.	C7	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Pharmaceutical Organic Chemistry-3 • Pharmaceutical Organic Chemistry-4 • Botany and Medicinal Plants • Pharmacognosy-1 • Pharmacognosy-2 • Phytochemistry-1 • Phytochemistry-2 • Biochemistry-1 • Chromatography of Natural Products
	C8	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Pharmaceutical Organic Chemistry-3 • Production of Raw Materials
	C9	• Analytical chemistry-3 • Analytical chemistry-4 • Physiology • Toxicology-2

		• Applied Pharmacognosy-1 • Applied Pharmacognosy-2 • Pharmaceutical Organic Chemistry-4
4-6 Apply the principles of bio-informatics and computer-aided tools in drug design	C10	• Pharmaceutical Organic Chemistry-4 • Production of Raw Materials • Drug Design
4-7 Apply various principles to determine the characteristics of biopharmaceutical products	C11	• Toxicology-1 • Toxicology-2 • Pharmacotherapy
4-8 Select and assess appropriate methods of infection control to prevent infections and promote public health.	C12	• General Microbiology & Immunology • Pharmaceutical Microbiology • Biotechnology • Pathology and Parasitology • Toxicology-2 • Clinical Nutrition • Summer training
4-9 Utilize the pharmacological basis of therapeutics in the proper selection and use of drugs in various disease conditions.	C13	• Pharmacology-1 • Pharmacology-2 • Biotechnology • Toxicology-2 • Clinical Pharmacology • Clinical Nutrition • Summer training
4-10 Calculate and adjust dosage and dose regimen of medications	C14	• Biopharmaceutics & Pharmacokinetics • Community Pharmacy • Toxicology-2
4-11 Assess drug interactions, ADRs and pharmacovigilance.	C15	• Human Rights • Pharmacology-1 • Medical Microbiology • Toxicology-1 • Community Pharmacy • Clinical Pharmacology • Drug Design • Summer training
4-12 Apply the principles of pharmacoeconomics in promoting cost/effective pharmacotherapy	C16	• Accounting & business Administration
4-13 Analyze and interpret experimental results as well as published literature	C17	• Pharmaceutics-1 • Principles of Math. And Statistics • General Microbiology & Immunology • Histology and Anatomy • Pharmaceutical Microbiology • Biochemistry-1 • Biochemistry-2 • Medical Microbiology • Biotechnology • Clinical Biochemistry • Bioassay-1 • Bioassay-2 • Biotechnology of Natural Products

		• Pathology and Parasitology • Research Project
4-14 Analyze and evaluate evidence-based information needed in pharmacy practice.	C18	• Pharmacognosy-1 • Histology and Anatomy • Psychology • Phytochemistry-1 • Pharmacology-1 • Phytochemistry-2 • Toxicology-1 • Toxicology-2 • Applied Pharmacognosy-1 • Clinical Pharmacology • Research Project • Applied Pharmacognosy-2 • Pharmacotherapy
5-1 Communicate clearly by verbal and written means	D1	• English and Medical Terms • Pharmaceutical Microbiology-2 • Pharmacology-1 • Microbiology-3 • Biochemistry-2 • Microbiology-4 • Hospital and Clinical Pharmacy-1 • Clinical Biochemistry • Hospital and Clinical Pharmacy-2 • Pathology and Parasitology • Clinical Pharmacology • Quality Control of Drugs • Clinical Nutrition • Summer training
5-2 Retrieve and evaluate information from different sources to improve professional competencies	D2	• Botany and Medicinal Plants • Psychology • Physiology • Clinical Biochemistry • Bioassay-1 • Toxicology-1 • Toxicology-2 • Applied Pharmacognosy-1 • Medicinal Chemistry-3 • Applied Pharmacognosy-2 • Quality Control • Pharmacotherapy • Drug Design • Summer training
5-3 Work effectively in a team	D3	• Botany and Medicinal Plants • Human Rights • Analytical chemistry-3 • Pharmacognosy-1 • Pharmaceutical Organic Chemistry-3 • General Microbiology & Immunology • Psychology • Analytical chemistry-4 • Pharmacognosy-2 • Pharmaceutical Organic Chemistry-4 • Pharmaceutical Microbiology

		• Phytochemistry-1 • Pharmacology-1 • Biochemistry-1 • Production of Raw Materials • Phytochemistry-2 • Pharmacology-2 • Biochemistry-2 • Chromatography of Natural Products • Medicinal Chemistry-1 • Clinical Biochemistry • Toxicology-1 • Biotechnology of Natural Products • Medicinal Chemistry-2 • Toxicology-2 • Applied Pharmacognosy-1 • Medicinal Chemistry-3 • Clinical Pharmacology • Applied Pharmacognosy-2 • Medicinal Chemistry-4 • Quality Control • Clinical Nutrition • Drug Design • Summer training
5-4 Use numeracy, calculation and statistical methods as well as information technology tools	D4	• General and Physical Chemistry • Pharmaceutics-1 • Principles of Math. And Statistics • Pharmaceutics-2 • Pharmaceutical Organic Chemistry-4 • Biopharmaceutics & Pharmacokinetics • Sterile Products and Controlled Drug Delivery • Bioassay-2 • Industrial Pharmacy-1 • Clinical Nutrition • Drug Design
	D5	• Pharmacognosy-1 • Pharmacognosy-2 • Phytochemistry-1 • Pharmacology-1 • Biochemistry-1 • Production of Raw Materials • Phytochemistry-2 • Bioassay-1 • Toxicology-1 • Biotechnology of Natural Products • Pathology and Parasitology • Bioassay-2 • Toxicology-2 • Applied Pharmacognosy-1 • Clinical Pharmacology • Applied Pharmacognosy-2
5-5 Practice independent learning needed for continuous professional development	D6	• Pharmaceutics-3 • General Microbiology & Immunology • Pharmaceutics-4 • Pharmacology-1

		• Hospital and Clinical Pharmacy • Clinical Pharmacology • Clinical Nutrition • Summer training
5-6 Adopt ethical, legal and safety guidelines	D7	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Analytical chemistry-3 • Pharmaceutical Organic Chemistry-3 • Analytical chemistry-4 • Pharmaceutical Organic Chemistry-4 • Microbiology-3 • Production of Raw Materials • Biotechnology • Medicinal Chemistry-4 • Accounting & Business Administration • Summer training
5-7 Develop financial, sales and market management skills	D8	• Human Rights • Psychology • Accounting & Business Administration • Summer training
5-8 Demonstrate creativity and time management abilities	D9	• Pharmaceutical Organic Chemistry-1 • Pharmaceutical Organic Chemistry-2 • Analytical chemistry-3 • Pharmaceutical Organic Chemistry-3 • Analytical chemistry-4 • Pharmacognosy-2 • Pharmaceutical Organic Chemistry-4 • Biochemistry-1 • Production of Raw Materials • Medicinal Chemistry-4 • Summer training
5-9 Implement writing and presentation skills	D10	• General and Physical Chemistry • Botany and Medicinal Plants • English and Medical Terms • Pharmacognosy-1 • General Microbiology & Immunology • Histology and Anatomy • Analytical chemistry-4 • Pharmacognosy-2 • Pharmaceutical Organic Chemistry-4 • Pharmaceutical Microbiology • Physiology • Pharmacology-1 • Biochemistry-1 • Medical Microbiology • Production of Raw Materials • Phytochemistry-2 • Pharmacology-2 • Biochemistry-2 • Biotechnology • Medicinal Chemistry-1 • Clinical Biochemistry • Toxicology-1 • Medicinal Chemistry-2

		• Pathology and Parasitology • Bioassay-2 • Toxicology-2 • Medicinal Chemistry-3 • Clinical Pharmacology • Research Project • Quality Control • Clinical Nutrition • Pharmacotherapy • Summer training
5-10 Demonstrate critical thinking, problem-solving and decision-making abilities	D11	• Botany and Medicinal Plants • Pharmaceutics-1 • Analytical chemistry-1 • Principles of Math. And Statistics • Human Rights • Analytical chemistry-2 • Pharmacognosy-1 • Pharmaceutics-3 • Histology and Anatomy • Psychology • Pharmaceutical Organic Chemistry-4 • Pharmaceutics-4 • Biopharmaceutics & Pharmacokinetics • Phytochemistry-1 • Biochemistry-1 • Sterile Products and Controlled Drug Delivery Phytochemistry-2 • Biotechnology • Hospital and Clinical Pharmacy • Chromatography of Natural Products • Clinical Biochemistry • Toxicology-1 • Community Pharmacy • Biotechnology of Natural Products • Pathology and Parasitology • Toxicology-2 • Industrial Pharmacy-1 • Applied Pharmacognosy-1 • Research Project • Applied Pharmacognosy-2 • Clinical Nutrition • Pharmacotherapy • Summer training

A : Knowledge and understanding.
B : Intellectual skills.
C : Professional and practical skills.
D : General and transferable skills.

- **<u>Strong points:</u>**

1. All National Academic References Standards (NARS/2009) are covered by the courses

2. Presence of qualified staff members of different specialties

3. Continuous students assessment is conducted through midterm exam in the 7th week of the semester

4. The courses contents are regularly reviewed by the course instructors and updated according to the latest updates in pharmacy

5. Presence of different courses that acquire students background knowledge in pharmacy practice to cope with the shift of pharmacist job responsibilities, e.g. Hospital and Clinical Pharmacy, pharmacotherapy, community pharmacy, clinical biochemistry 1&2, clinical nutrition and others

6. Different teaching methods are used e.g. lectures, demonstration within labs, practical experiments and case studies

7. Some skills are developed through the courses activities such as problem-solving, presentation skills, time management, team work and others

8. Presence of research project for 5th year students to develop different research skills such as ability to retrieve information from different resources and scientific writing and others

9. Presence of 300 hours dedicated for summer training in which students should pass, so the students have the chance to apply knowledge in real field practice

10. Some **Field visits** are present within some courses, e.g. pharmacognosy (flora collection) and industrial pharmacy (visits to some pharmaceutical Co.), hospital pharmacy (visit to the Zagazig University Hospital)

Measures done to ensure achievement of program aims:

Achievement of program aim and objectives is assured through:

- Analysis of students results (course reports, statistics in section B of program report) which showed reasonable distribution of marks in individual courses as well as reasonable program completion rate (> 70%) and pass rates (> 80%).

Academic year	pass No	Fail No	Pass rates
2017 - 2018	811	40	95.3%
2016 - 2017	792	132	85.7%

- Graduates Satisfaction about the program
- Employer satisfaction about the quality of graduates
- % of graduates employment (in process)

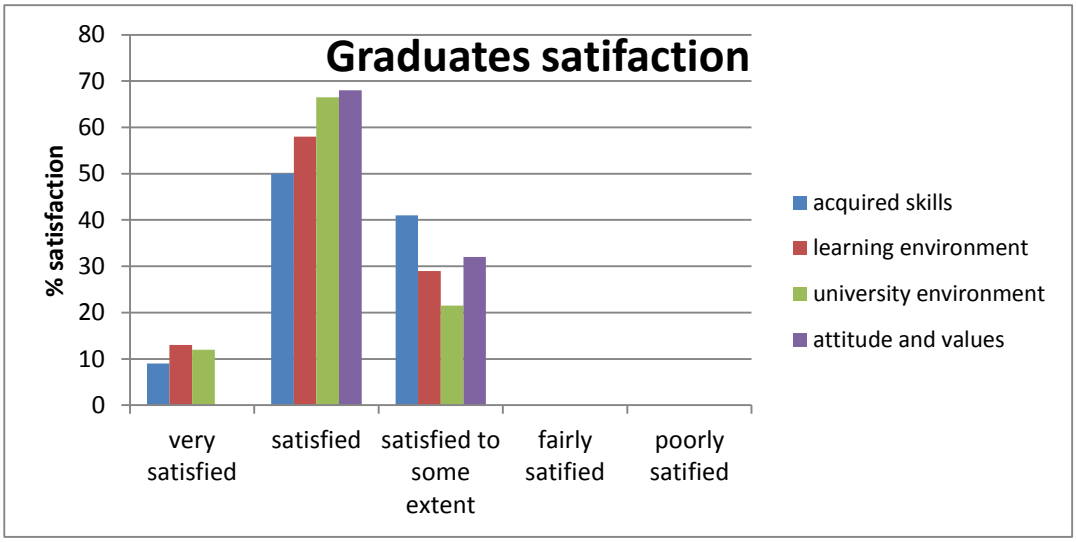


Fig. 3: Graduates satisfaction about the program.

Generally, graduates were satisfied about the quality of the program in terms of acquired skills through the program (report writing, critical thinking, team work, self learning, problem solving and others), learning environment (teaching and assessment methods and others), university environment (facilities and services) and attitude and values (staff interaction with students, commitment and others).

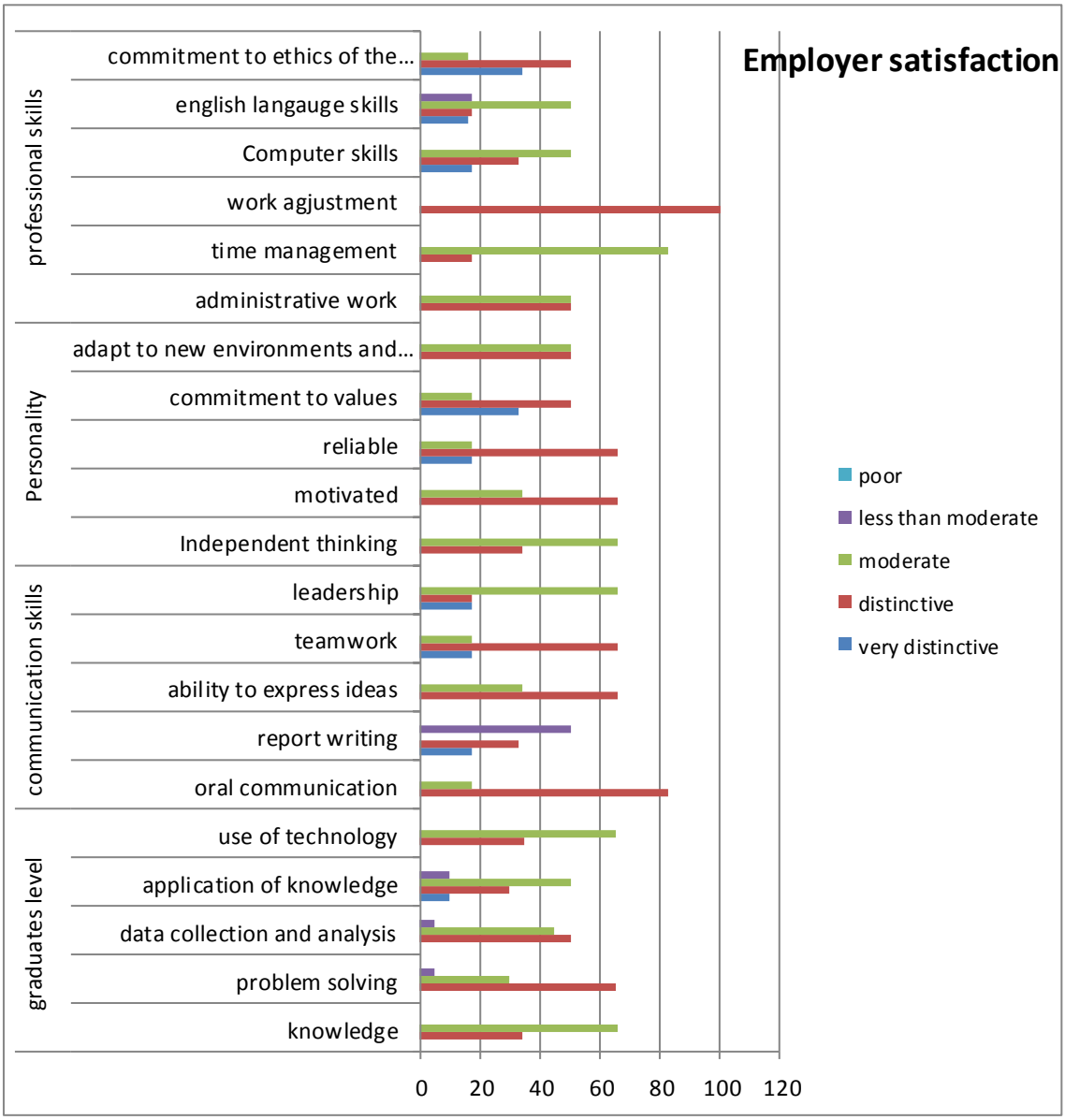


Fig. 4 : Employer satisfaction about the quality of Zagazig pharmacy graduates.

Stakeholders were surveyed about the quality of the graduates, generally they were satisfied but they recommended to give more interest on the development of some of the soft skills necessary for future career e.g. writing skills, critical thinking, conflict management, positive attitude and work ethics.

2. Students evaluation to measure extent of ILOs achievement

Student Assessment Methods

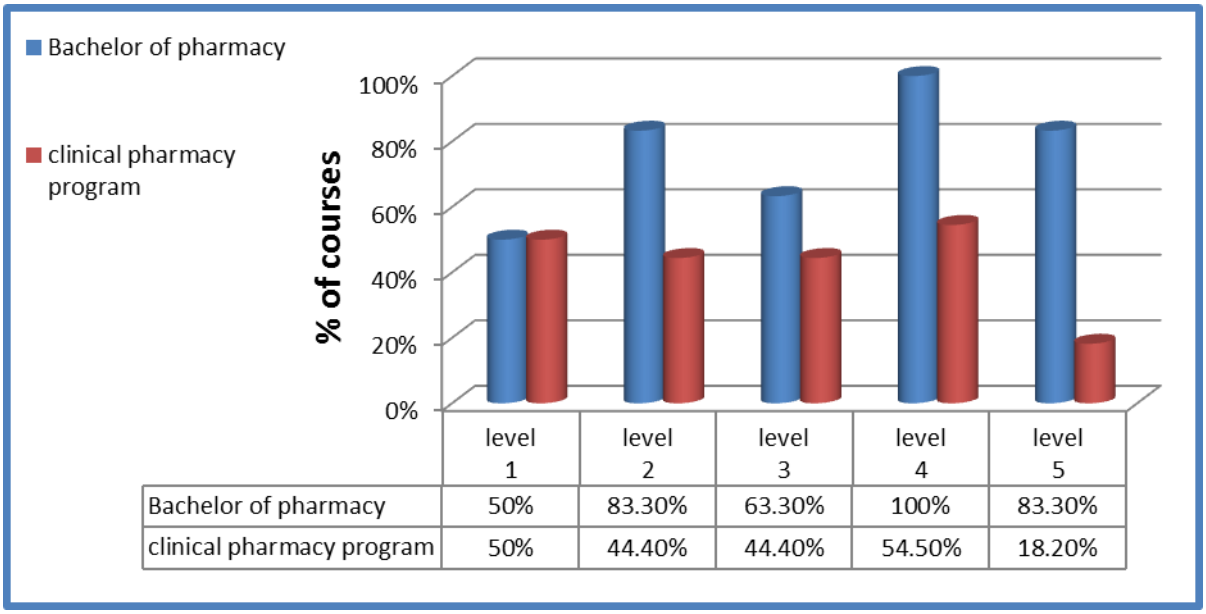
ILOs	Method of achievement and assessment
Knowledge and Understanding Intellectual Skills	Written and oral Exam
Professional and practical Skills Intellectual Skills	Practical Exam Summer Training
Intellectual Skills General and Transferable Skills	Oral Exam Team Work Assignment Research project

Distribution of assessment marks

Course	Method of Assessment					Total
	Final written	Practical	Oral	Midterm	Assignment	
(3 theoretical hours)	75	30	20	15	10	150
(2 theoretical hours)	50	20	15	1 10	5	100
Biotechnology (2 theoretical hours)	75	-	20	5	-	100
Analytical chemistry1,2 (1 theoretical hour)	30	10	10	-	-	50
Public health (1 theoretical hour)	30	10	10	-	-	50

Distribution of assessment marks for courses with no oral exam

Course	Method of Assessment		
	Final written	**Practical**	**Midterm/assignment**
English and medical terms	40	-	10
Math & statistics	40	-	10
Accounting and pharmaceutical business administration	40	-	10
Drug marketing and communication skills	80	-	20
Psychology	40	-	10
Human Rights	80	-	20
Anatomy & histology	35 + 35	10+10	5+5
Physiology	80	-	20
Elective course	70	20	10



	level 1	level 2	level 3	level 4	level 5
Bachelor of pharmacy	50%	83.30%	63.30%	100%	83.30%
clinical pharmacy program	50%	44.40%	44.40%	54.50%	18.20%

Fig. 5: Percentage of courses that changed the types of questions (objective questions: MCQs, T&F, Matching) in the final written exam and used electronic marking system.

3. Quality of learning opportunities

A-Quality of Teaching and Learning:

The quality of teaching and learning was evaluated at the end of each semester through questionnaires directed to students in all academic levels. Questioners measure student satisfaction about the courses structure and contents, quality of courses handouts and appropriateness of final exams questions. Departments are informed by the questioners' results for corrective actions when necessary.

First Year:

Human Rights course had the lowest satisfaction level, while Analytical Chemistry2 had the highest level of satisfaction.

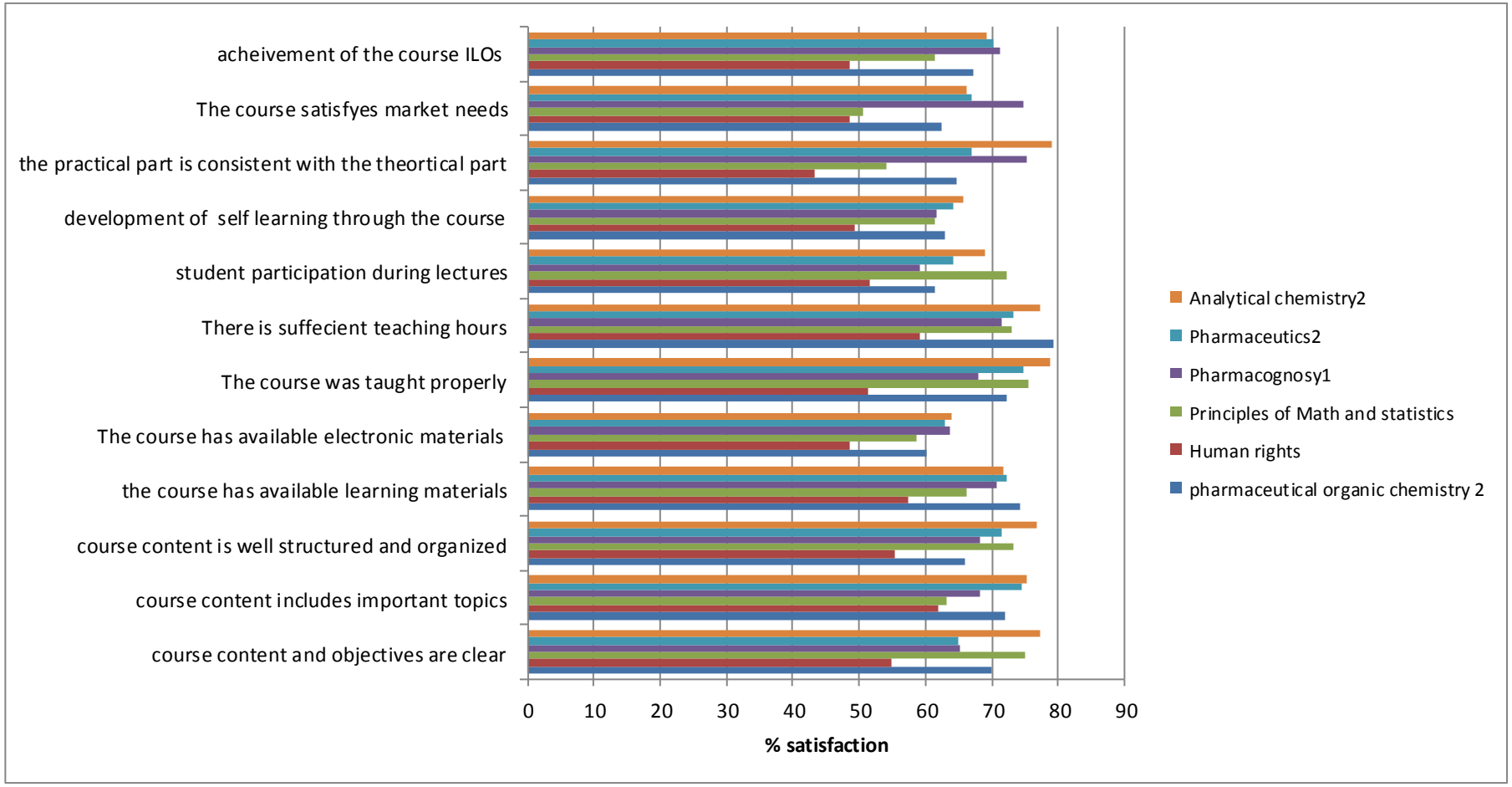


Fig. 6: First year students' satisfaction about 2nd term courses.

Second year:

All courses have an average of satisfaction of about 50 – 60%.

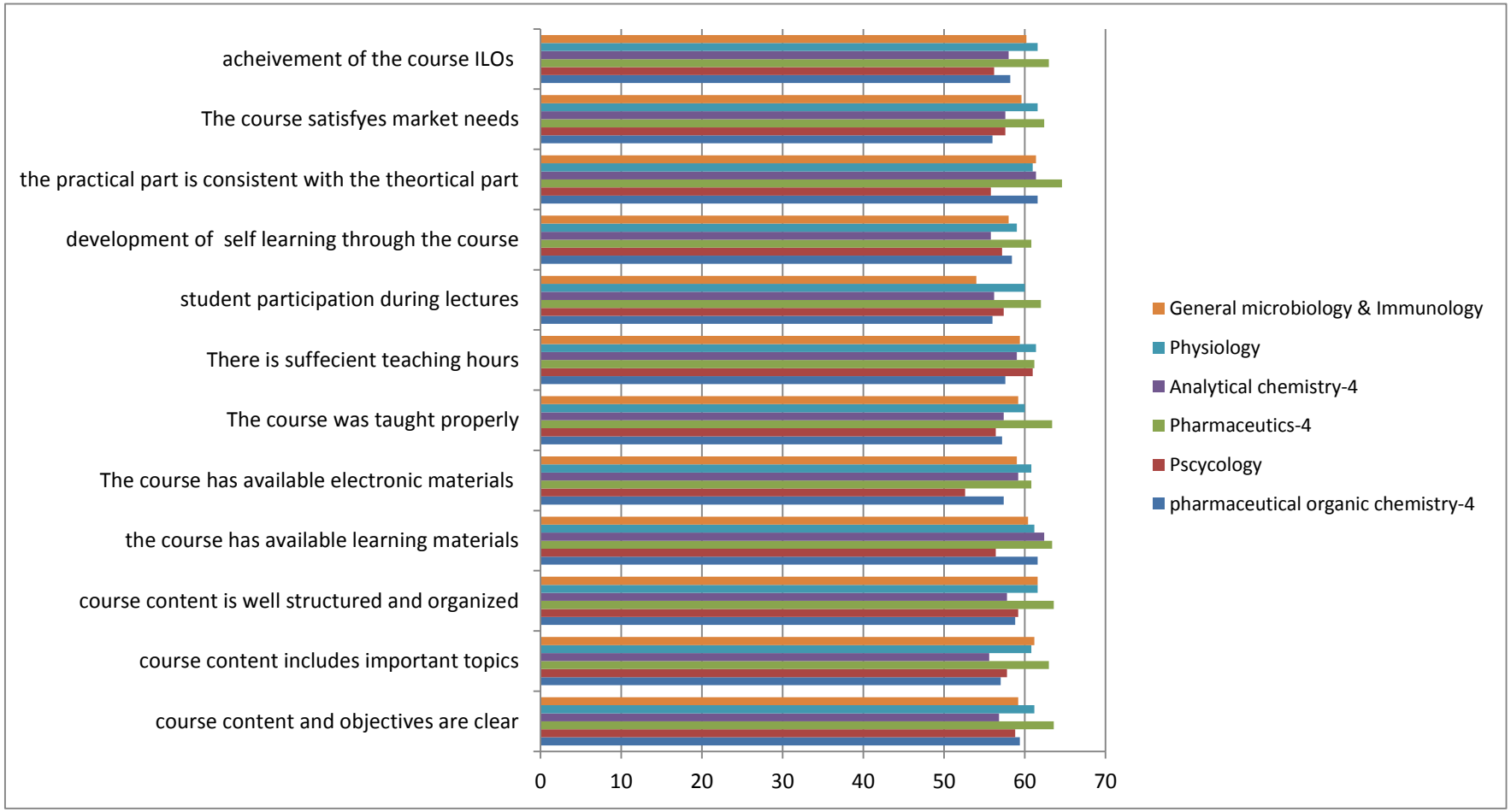


Fig. 7: Second year students' satisfaction about 2nd term courses.

Third Year:

Sterile products & controlled drug delivery course had the highest satisfaction level followed by Biochemistry course.

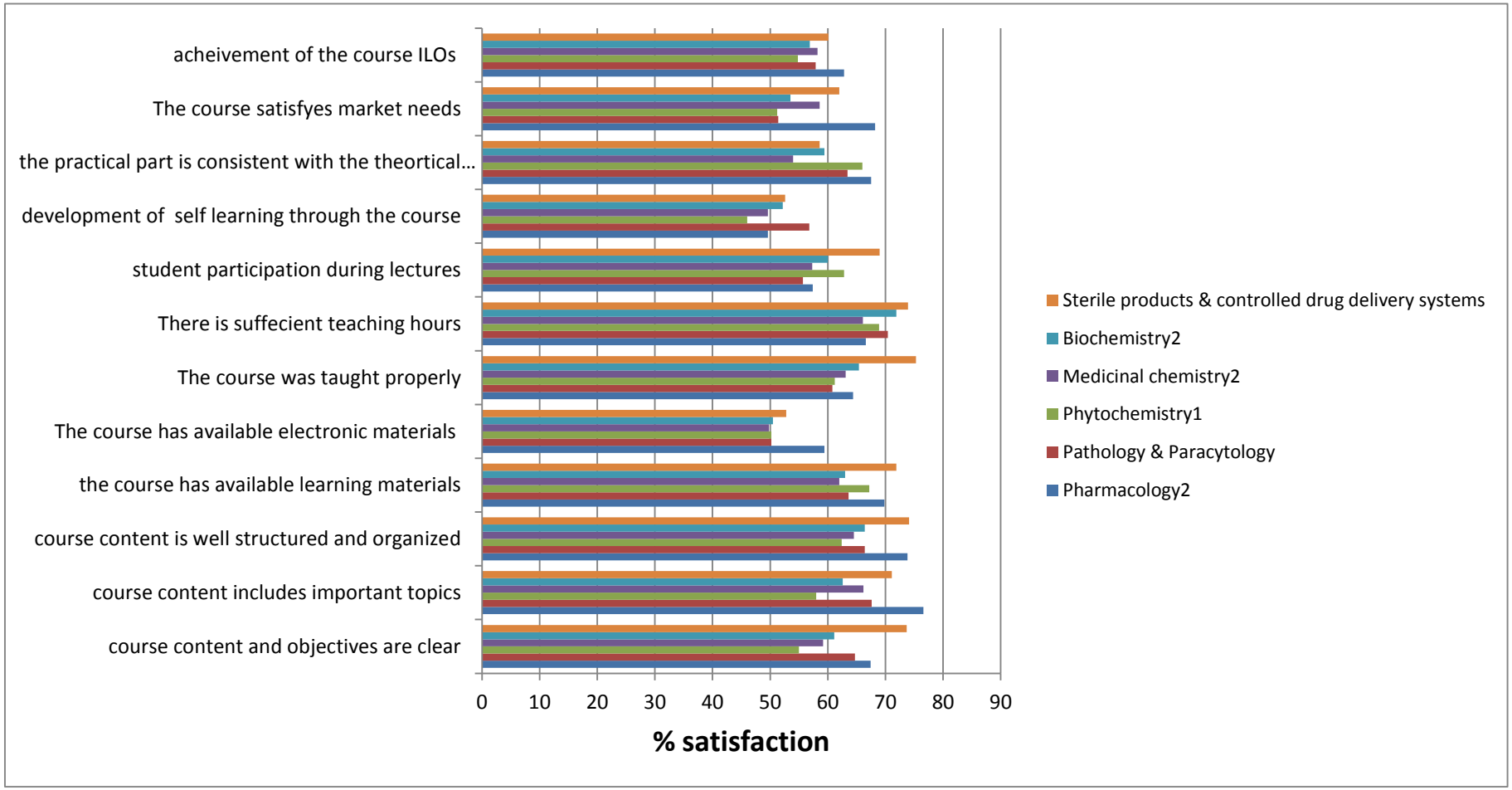


Fig. 8: Third year students' satisfaction about 2nd term courses.

B- Effectiveness of Student Support Systems:

Academic guidance and support for all students

* **Course instructors** are available in office hours (4 hours/week) to guide students, guarantee effective communication, clarify any unclear points within the course and answer any questions related to the course.

* **Students** receive feedback about their performance within the course and are notified with weakness areas that require improvement.

* **Distinguished and talent students in all program levels** are identified and nominated by the faculty administration.

* **Ministry of Higher Education (MOHE)** by laws states an annual financial support for distinguished students as follows:

- **Students with excellent grades receive 120 LE**
- **Students with very good grades receive 84 LE**

* **Financially needy students** receive financial social support from Solidarity Fund authority **as** follows: 150-200 LE per term; this may vary dependent on student status, student number and money available.

* **ICDL computer grant** is now available for all faculty students **200 LE**.

* **All students** are covered by health insurance in the different university hospitals and unlimited coverage.

* **The university housing** is available at very small rate **(65 *LE* / month)** to all the university students from other governorates including pharmacy students as well, particularly for girls.

* **The tuition and fees paid** annually by students are feasible for most of the students **(≈ 150 *LE*)**.

*The university regularly supports the tuition of accommodation in the University Hotel for students coming from low income families **(70,000 LE)**.

* The university restaurant provides the students with healthy reduced meals daily (for 1.0 LE*)*.

* Each student has the chance to participate in different cultural, sportive, artistic, social, ascetic and camping activities within the faculty or between faculties for distinguished or talented ones.

- Students relocation from and to the faculty depends on geographical distribution,

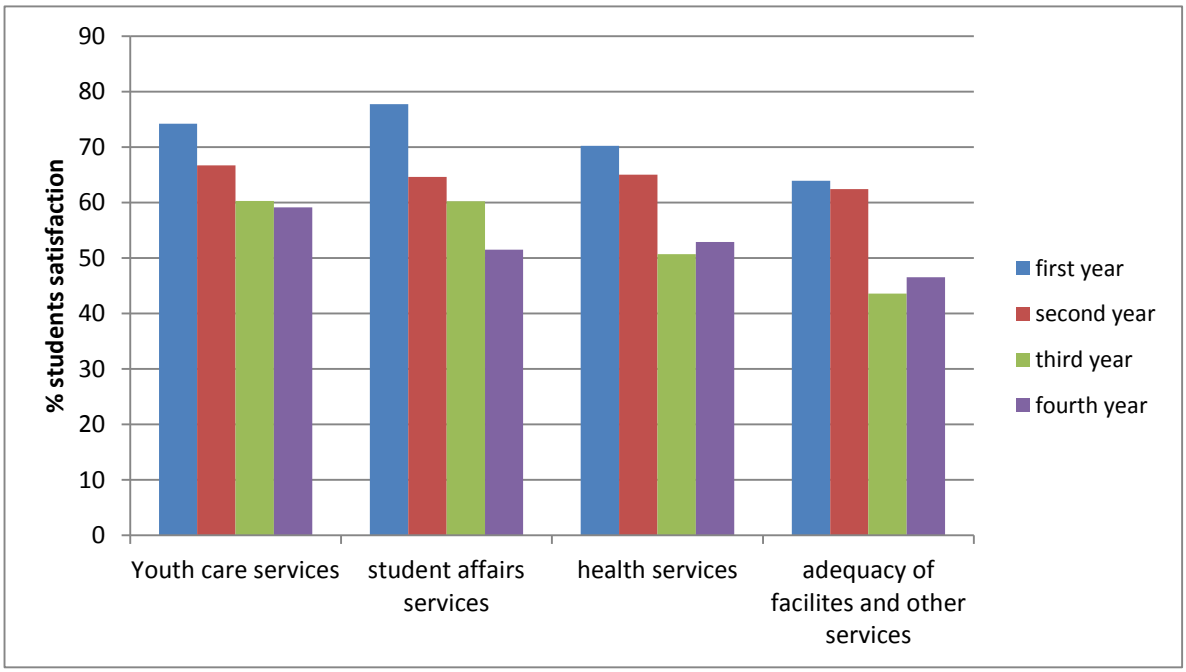
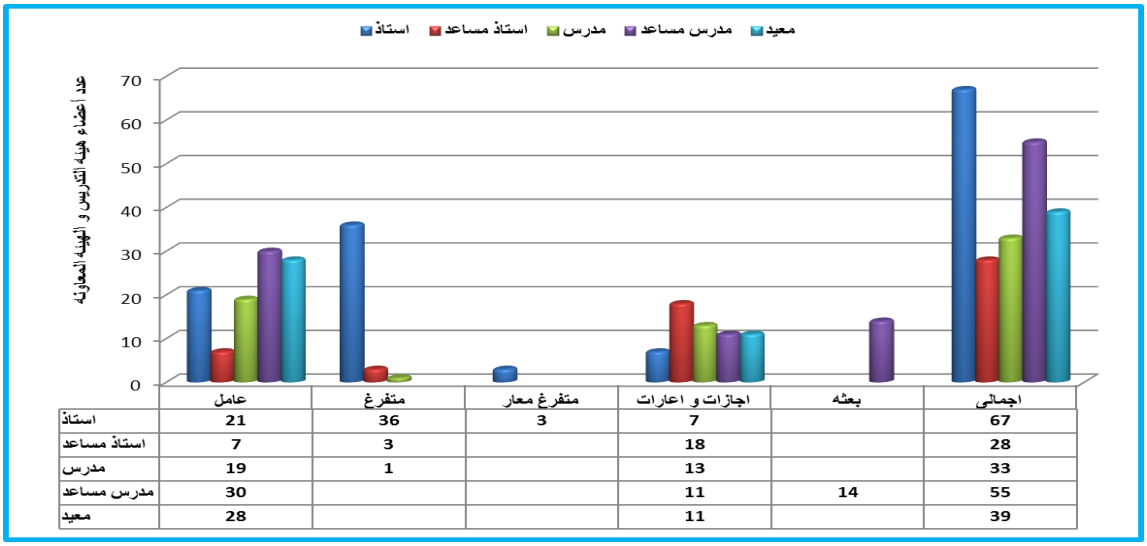


Fig. 9: Students satisfaction about the adequacy of support services.

	Social funds	**handout funds**	**students activities**
Amount	**101,440**	**65,795**	**15,405**
Total = 182,640			

C. Learning Resources:

I. Number and ratio of Faculty members and their assistants to students:



	عامل	متفرغ	متفرغ معار	اجازات و اعارات	بعثه	اجمالى
استاذ	21	36	3	7		67
استاذ مساعد	7	3		18		28
مدرس	19	1		13		33
مدرس مساعد	30			11	14	55
معيد	28			11		39

Fig. 10: Total number of teaching staff members and assistants (2017-2018).

Teaching staff/assistants	No.	Students No.	Ratio
Pharmacy teaching staff	**87**	**4996**	**57:1**
Pharmacy + external teaching staff	**106**		**47:1**
Assistants	**58**		**86:1**

II. Adequacy of the specialties of the faculty members to the requirements of the program:

The specialties of the faculty members of all departments are adequate for the requirements of the program. Each department teaches courses relevant to its own specialty. In addition to presence of staff members from the Faculty of Medicine, Commerce, Science, Law and Education to teach medical, social and behavioral courses.

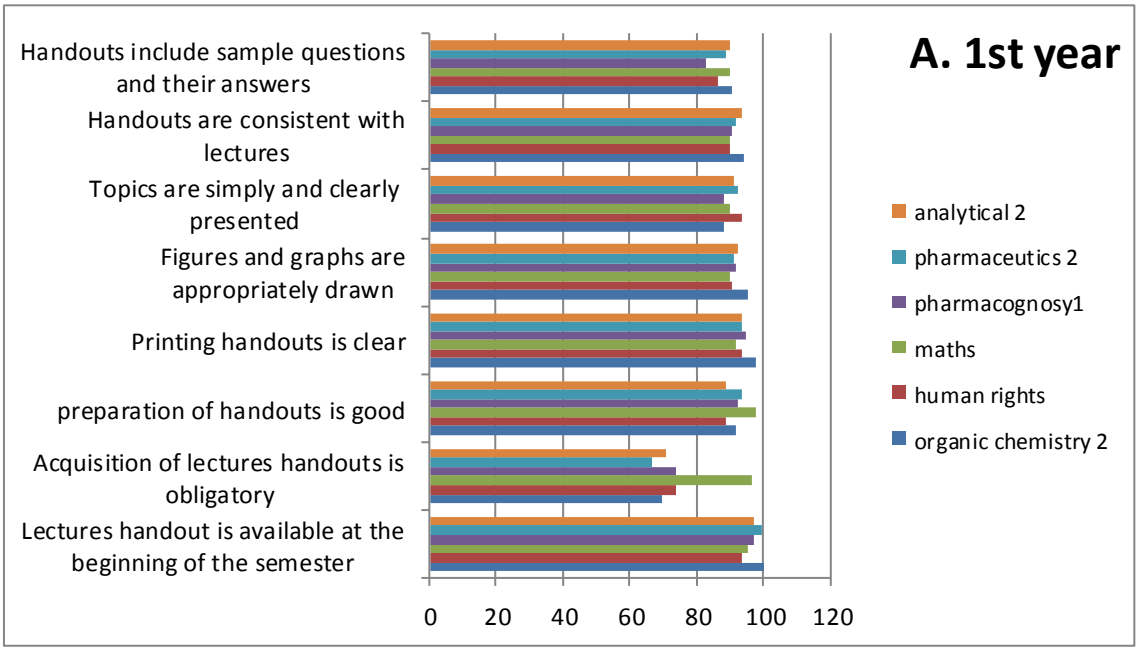
There is shortage in the numbers of faculty members and teaching assistants. This shortage differs from one department to the other.

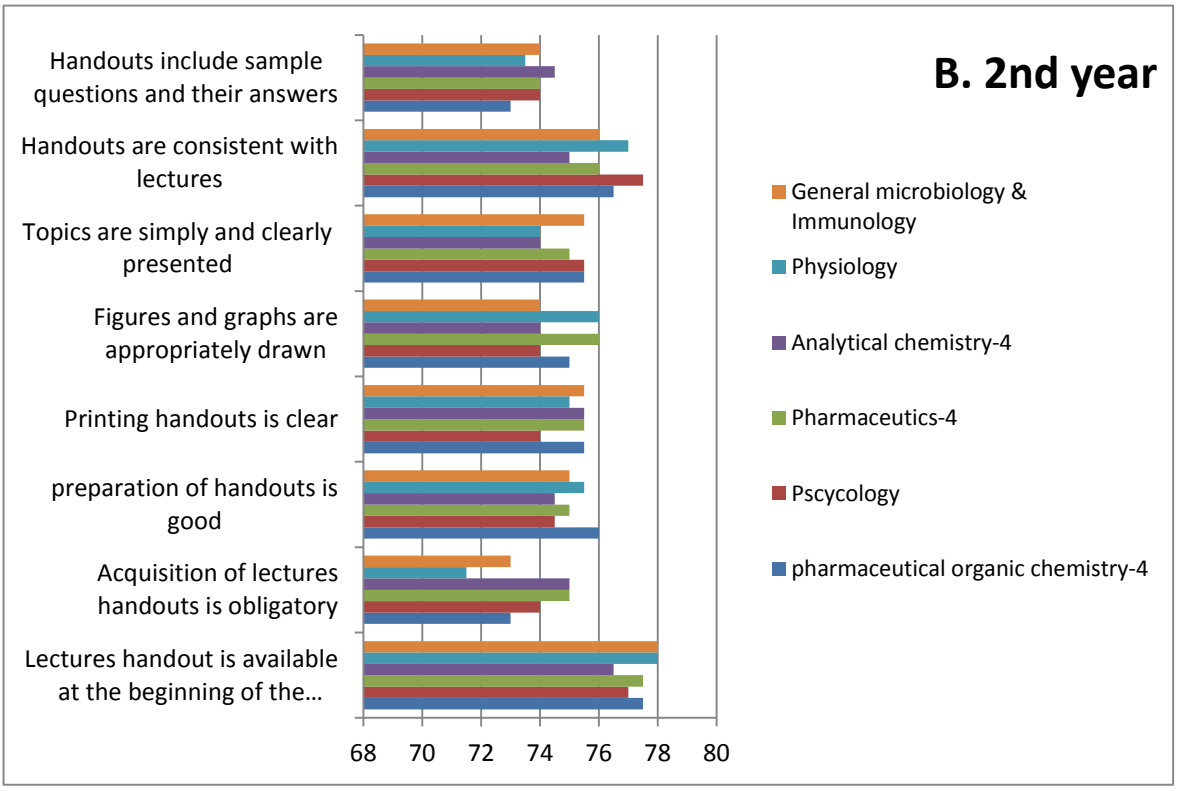
Department	No. of faculty members and Teaching assistants	No. of students	Staff / students ratio
Medicinal Chemistry	13	2977	229:1
Analytical Chemistry	21	2948	140:1
Biochemistry	14	2048	146:1
Pharmacognosy	28	4996	178:1
Pharmacology	16	4142	259:1
Microbiology	17	4142	243:1
Pharmaceutics	19	4996	263:1
Organic Chemistry	12	2948	245:1
Pharmacy practice	7	1879	268:1

III. Availability and adequacy of courses handouts.

In fact, all courses handouts are available for most of students (in different levels) containing courses intended learning outcomes and student assessment methods as well. Likewise, a student guide is available for the newly admitted students in the students affairs and youth care office, describing the infra structure of the college, structure and location of each department, faculty members, faculty facilities, admission policies, student support system as well as the different faculty activities and achievements.

The results of students' satisfaction about lectures handouts are demonstrated below. Nearly all courses handouts gained appropriate satisfaction (70-90%)


A. 1st year
Handouts include sample questions and their answers
Handouts are consistent with lectures
Topics are simply and clearly presented
Figures and graphs are appropriately drawn
Printing handouts is clear
preparation of handouts is good
Acquisition of lectures handouts is obligatory
Lectures handout is available at the beginning of the semester
0
20
40
60
80
100
120
analytical 2
pharmaceutics 2
pharmacognosy1
maths
human rights
organic chemistry 2


B. 2nd year
Handouts include sample questions and their answers
Handouts are consistent with lectures
Topics are simply and clearly presented
Figures and graphs are appropriately drawn
Printing handouts is clear
preparation of handouts is good
Acquisition of lectures handouts is obligatory
Lectures handout is available at the beginning of the...
68
70
72
74
76
78
80
General microbiology & Immunology
Physiology
Analytical chemistry-4
Pharmaceutics-4
Pscycology
pharmaceutical organic chemistry-4

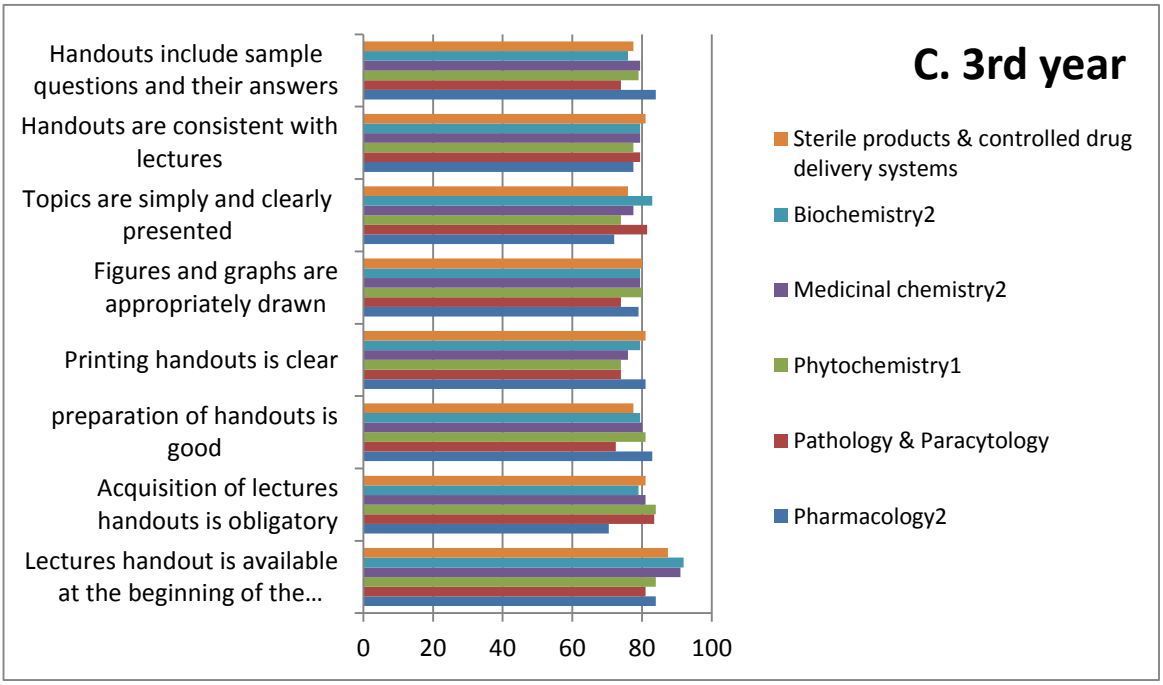


Fig. 11: Students satisfaction about lectures handouts.

IV. Adequacy of library facilities.

The Library Facilities;

Library Halls

A-The Library is located at the third floor in the administration building. The space is around 283 m^2, **divided into 5 halls**:

i- The largest hall (96 m^2) is allocated for undergraduate students

ii- The faculty and staff hall (periodical and thesis)

iii- One room for photocopying.

iv- One hall in the pharmaceutics department (pharmaceutics periodical & thesis).

v- One room for internet service (electronic library).

The Library Facilities:

Library is provided with:

i-10 tables and 108 seats with adequate illumination and air conditions.

ii- Two photocopying machines, one scanner.

iii- 30 computers with 13 printers.

Working hours: The library opens from 9 a.m. to 4 p.m. daily during semester's time and from 9 a.m. to 2 p.m. on Saturday.

Library collection: The library contains**:**

i- Almost **6355** English and **2264** Arabic textbooks in different specialties of pharmacy.

ii- **68** periodicals, **5666** English volumes and **400** Arabic issues.

iii- **1081** Master and PhD thesis

Library services

1-Photocopying

There is a photocopying unit available for all the students.

2-Internet services

The internet facility is introduced and available for students. E-library is connected to Zagazig university library, other Egyptian libraries and international scientific research engines e.g. research gate.

Evaluation of library services by both staff members and students revealed about 80 – 100% satisfaction

The library budget

	2015-2016	2016-2017	2017-2018
Budget in Egyptian pounds	16,000	18,000	26,000

V. Laboratories and teaching halls:

i- Each department has a number of laboratories (Total = 20) that are equipped with the necessary equipment, glassware and chemicals suitable for conducting the practical sessions of each department.

ii- The infrastructure of each laboratory is suitable, the area capacity about 126 square meters; each lab. is provided with 4 : 7 working benches; six large windows; 3 : 5 vacuum ventilation fans; two sets of fire extinguisher and first aid kit.

iii- The average number of students per lab is 30-40.

iv- The faculty has 6 teaching halls (4 of them are air conditioned), well seated, lighted and aeriated. They are equipped with data shows and sound systems.

VI. Adequacy of computer facilities:

- The faculty has an e-library containing 30 computers with 13 printers.
- The faculty is about to establish a drug design lab

VII. Adequacy of Field / Practical Training Resources.

As mentioned before, the structure of the program includes about a mandatory 300 hours summer training in pharmaceutical companies, private pharmacies, or other pharmaceutical institutions. The summer training is divided into two academic years (after the second and /or third academic year) and is under the faculty supervision to insure its value and effectiveness. Although there is a process controlling the summer training in which each supervisor has an assigned group of about 20 students, the effectiveness of the summer training is variable and an improvement plan is required to ensure the achievement of the summer training ILOs.

3. Quality Management.

a. Availability of regular evaluation and revision system for the program:

Program evaluation systems include the following:

1-External evaluation for program

2-Internal evaluation for program

Comment of internal evaluator	Comment of external evaluator
• The program is in compliance with the faculty's mission and NARS. • The program goals are compatible with the graduate attributes and the job market needs. • Program and course specifications are in accordance with available job opportunities locally and regionally. • The absolute necessity of increasing pharmacy practice courses at the expense of pharmacognosy, medicinal plants and organic chemistry courses that are overrepresented in comparison with many International universities. • There is no practical specification of the research project.	• The program aims are defined and are in compliance with the faculty mission • The program ILOs are in compliance with the program aims and are covered through the courses • A13 and A35 are similar in meaning • Re-phrasing of some program aims • Application of modern teaching methods to achieve the required competencies 2017. As well as modern assessment such as student portfolio • Induction of some new courses to the program such as: ✓ Pathophysiology ✓ Bioinformatics ✓ Radiopharmaceuticals ✓ Pharmacoeconomics ✓ Pharmacovigilance ✓ Genomics ✓ Entrepreneurial skills

3- Curriculum committee headed by the Vice-Dean for education and students affairs, and includes different departments representatives in addition to the manager of quality unit.

The committee demonstrated the following achievements:

i. Revision of the program specification, according to the newly published NARs, 2017 for pharmacy education.

ii. Updating the program specification after matching with the required attributes and competencies for pharmacy education, 2017

iii. Preparation of a proposal for adding to new elective courses:

- Entrepreneurship and Business Development
- Human Resource Strategies for Innovation

4- Evaluation by stakeholders: graduates and employers (results of surveys were mentioned earlier)

7- Evaluation by customers (students)

a-Effectiveness of the system.

Administrative constrains for achievement of program ILOs include:

1-Increasing number of students

2-Staff / student ratio is inadequate

Measures done to overcome these obstacles:

- Training sessions are regularly held to enhance the faculty potentials to apply new teaching and assessment strategies that would encourage developing higher skills and maintain life long education.
- Effectively classify student into groups (250 student in lecture halls and 40 student / lab) to meet the increasing number of students.
- Development and maintenance of the infrastructure of the faculty to meet the steadily increasing number of students.

c-Effectiveness of Faculty and University Laws and Regulations for Progression and Completion.

- The system effectively supports the students in every year and levels in a manner that fairly facilitates the progression and completion of the degree.

- Administrative and academic leader members apply the rules regarding student attendance percentage and staff member performance (course specification, and report).

d. Faculty Response to Students and External Evaluations|:

– Students feedback about the quality of courses were directed for the heads of the departments to be discussed during the department minutes and take corrective actions when necessary

- Students feedback about the quality of support services were reported to the administration

-The faculty is continuously enhancing and developing the teaching aids by introducing and installing several data shows, overhead projectors , computers in addition to the traditional and magic boards.

-The faculty has already connected the internet to the different departments and the library to facilitate using search engines during the practical and theoretical sessions.

4. Proposals for Programme Development.

i. Addition of the following two elective courses:

- Entrepreneurship and Business Development
- Human Resource Strategies for Innovation

ii. Courses modifications:

- Induction of the following new courses/ topics to the program will be planned:
  - ✓ Pathophysiology
  - ✓ Bioinformatics
  - ✓ Radiopharmaceuticals
  - ✓ Pharmacoeconomics
  - ✓ Pharmacovigilance
  - ✓ Genomics
  - ✓ Entrepreneurial skills

5. Staff development requirements

1- ***Professional training programs are requested based on the results of training questionnaires for staff members:***

- Learning outcomes
- Strategic planning
- Interactive teaching methods
- Communication skills
- Management and leader skills
- Thinking skills
- Course specification and report

2- ***List of attended training programs by the staff members and assistants during 2017 – 2018:***

- Time Management and Meetings
- International Publishing of Scientific Researches
- Using Technology in Education
- Thesis discussion and articles review: core skills and concepts
- Photoshop and scientific images enhancement
- Design a power point presentation for scientific researches
- Use of global databases and management of scientific references and avoid plagiarism
- Reference management: Endnote and Mendely
- Credit hours
- Photoshop and scientific images enhancement
- How to launch a research project
- How to run a western blot (practical workshop)
- Quality management in healthcare
- Communication skills in teaching
- Exam systems and students evaluation

- Thinking skills in creativity
- Management and organization of scientific conferences
- Avoiding of plagiarism
- Use the process databases
- Preparation of teaching assistant
- Effective academic writing by nature research academies, National training institute, Cairo
- Clinical pharmacogenomics research internship, Aquilante lab, Skaggs school of pharmacy and pharmaceutical sciences, university of Colorado, Denver, Anschutz medical campus, USA
- Quality in research: from research topic identification to publishing, National training institute, Cairo
- Use of global databases and management of scientific references and avoid plagiarism
- Statistical analysis (SPSS)
- Critical appraisal
- Scientific Writing and Reference Management by " Endnote"
- MI-CIT, Online (E-learning) by MKCL

6. Action plan:

Action	Person responsible	Completion date
Update the learning and education strategy to cope with the requirements of implementation of competency-based curriculum	• Vice dean for education and students affairs • Quality unit • Curriculum committee	Dec.2018
Professional training for staff members	• Quality unit • FLDP center in Zagazig university	Annual
Revision of course specifications and course reports	• Curriculum committee	Annual
Program evaluation by different stakeholders: graduates & employers	• Quality unit	Annual
Induction of the following courses/topics: ✓ Pathophysiology ✓ Bioinformatics ✓ Radiopharmaceuticals ✓ Pharmacoeconomics ✓ Pharmacovigilance ✓ Genomics ✓ Entrepreneurial skills	• Staff members • Curriculum committee	2019-2020
Induction of new teaching and assessment method	• Staff members • Curriculum committee	2019-2020
Development of soft skills required for future career in students	• Students training unit in the faculty	Annual
Administrative Training	University programme	Annual

Appendix 1

The following is the programme structure, previously described and submitted in the programme specification.

الفرقة الأولى - الفصل الدراسي الأول

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
AC110	Analytical chemistry-1	1	2	2	A1, A11, A12,B2, B4, C6, D7
POC110	Pharmaceutical Organic Chemistry-1	2	2	3	A1,A15,B2, B5, C6,D7
PG110	Botany and Plant Taxonomy	2	2	3	A3,C6
AC111	General and Physical Chemistry	2	2	3	A1, A9, B2, D7
PC110	Pharmaceutics-1	2	2	3	A2,A12, A36, B1, B2, B4, C1,C11,D6,D7
EL110	English and Medical Terminology	1	-	1	A2,B1, D1
	Total	10	10	15	

جدول رقم (2): الفرقة الأولى - الفصل الدراسي الثاني

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
AC122	Analytical chemistry-2	1	2	2	A1, A11, A12,B2, B4, C6, D7
POC121	Pharmaceutical Organic Chemistry-2	2	2	3	A1,A15,B2, B5,C6,D7
PG121	Pharmacognosy 1	3	2	4	A2, A3,A12,B2, B4,C4, C6,
PC121	Pharmaceutics-2	2	2	3	A2, A9, B2,C1, D6, D7
MS120	Mathematics and Statistics	1	-	1	A1, B1, C14, D4,
HR120	Human Rights and Professional Ethics	2	-	2	A5, A8, A38, C15, D1, D2, D7
	Total	11	8	15	

جدول رقم (3): الفرقة الثانية الفصل - الدراسي الأول

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
AC213	Analytical chemistry-3	2	2	3	A1, A11, A12,B2, B4, C6, D7
POC212	Pharmaceutical Organic Chemistry-3	2	2	3	A1,A15,B2, B5,C6,D7
PG212	Pharmacognosy 2	2	2	3	A2, A3,A12,B2, B4,C4, C6,
PC212	Pharmaceutics-3	2	2	3	A2, A16, A17, B2, B3, C1, C2, D6, D7
MD210	Anatomy & Histology	2	1	2	A4
DM21	Drug Marketing and Communication Skills	2	-	2	A5, A6, D1, D2, D9, D10,
	Total	12	9	17	

جدول رقم (4): الفرقة الثانية - الفصل الدراسي الثاني

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
AC224	Analytical chemistry 4	2	2	3	A1, A11, A12,B2, B4, C6, D7
POC223	Pharmaceutical Organic Chemistry-4	2	2	3	A1,A15,B2, B5,C6,D7
PC223	Pharmaceutics-4	2	2	3	A2, A9, A16, A17,A38, B2, B3, C1, C2, C5, D6, D7
MI22	General Microbiology + Immunology	3	2	4	A2, A4, A27, B2, B6, B7, B8, C9, D7
PT220	Physiology	2	-	2	A4, A24, B1, C10, D6,
PS220	Psychology	1	-	1	A5, C15, D1, D2, D3, D11
	Total	12	8	16	

جدول رقم (5): الفرقة الثالثة الفصل- الدراسي الأول

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PC314	Biopharmaceutics and Pharmacokinetics	2	2	3	A2, A9, A19, D6
PG313	Chromatography of Natural Products	2	2	3	A12, B1, B4, C6, D3, D7
PT312	Pharmacology 1	3	2	4	A2, A4, A29, A30, B2, B6, C10, C12, D6, D7
BC310	Biochemistry 1	2	2	3	A2, A4, A25, B2, B8, B9,C6,D3, D7
MC310	Medicinal Chemistry-1	2	2	3	A2, A15, B2, B5, C6, D6, D7
MI311	Pharmaceutical Microbiology	2	2	3	A2, A18, A22, A23, B2, B7, C3, C9, D7
	Total	13	12	19	

جدول رقم (6): الفرقة الثالثة – الفصل الدراسي الثاني

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PC325	Sterile Products and Controlled Drug Delivery Systems	2	2	3	A15, A17, A18, B2, B3, B5, C1, C2, C4, C5, D6, D7
PG324	Phytochemistry-1	2	2	3	A2, A12, B2, B4, C6, , D3, D6, D7
PT323	Pharmacology 2	2	2	3	A2, A4, A29, A30, B2, B6, C10, C12, D6, D7
BC321	Biochemistry 2	3	2	4	A2, A4, A25, B2, B8, B9, C6, D3,D7
MI322	Parasitology and Pathology	2	1	2.5	A4, A24, A27, A28, B2, B6, B7, B8, C9, D7
MC321	Medicinal Chemistry-2	2	2	3	A2, A15, B2, B5, C6, D6, D7,
	Total	13	11	18.5	

جدول رقم (7): الفرقة الرابعة – الفصل الدراسي الأول

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PG415	Phytochemistry 2	2	2	3	A2, A12, B2, B4, C6, , D3, D6, D7
BC412	Clinical Biochemistry 1	2	2	3	A2, A4, A24, A25, A28, B2, B8, B9, C6,D3, D7
PT414	Bioassay 1	2	2	3	A2, A31, A35, B4, C6, D6, D7
PT415	Toxicology 1	2	2	3	A2, A7, A8, A33, B11, C10, D6
MC412	Medicinal Chemistry 3	2	2	3	A2, A15, B2, B5, C6, D6, D7
MI413	Medical Microbiology	3	1	3.5	A2, A4,A27, A28, B2, B6, B7, B8, C9, D6, D7
	Total	13	11	18.5	

جدول رقم (8): الفرقة الرابعة – الفصل الدراسي الثاني

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PP420	Hospital Pharmacy and Clinical Pharmacy	2	1	2.5	A8, A20, A37, B2, B3, C1, C11, C15, D1, D3, D6, D7, D9, D11
PG426	Biotechnology of Natural Product	2	2	3	A10, A26,B5, C6, C8, D3, D6, D7
BC423	Clinical Biochemistry 2	2	2	3	A2, A4, A24, A25, A28, B2, B8, B9, C6,D3, D7
PT426	Bioassay 2	2	2	3	A2, A31, A35, A36, B4, C6, D6, D7
PT427	Toxicology 2	2	2	3	A2, A7, A8, A34, B10, C10, D6
MC423	Medicinal Chemistry 4	2	2	3	A2, A15, B2, B5, C6, D6, D7
MI424	Biotechnology	2	-	2	A2, A10, A15, B2, B5, C6, C8, D6, D7
	Total	14	11	19.5	

جدول رقم (9): الفرقة الخامسة – الفصل الدراسي الأول

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PP511	Community Pharmacy	2	1	2.5	A8, A21, A36, A37, B13, C15, D1, D3, D6, D7, D9, D11
PC516	Industrial Pharmacy 1	2	1	2.5	A2, A15,B12, C1, D7
PG517	Applied Pharmacognosy	2	2	3	A2, A12, B2, B5, C6, D3, D6, D7,
PT518	Clinical Pharmacology	3	2	4	A2, A4, A31, B6, C10, D3, D6, D7
	Elective 1	1	2	2	
PT519	Pharmacotherapy	2	2	3	A4, A29, B2, B6, C10, C12,C13, D6, D7
MI515	Public Health	1	1	1.5	A7, A21, B2, B7, B13, B14, C9, D3, D6, D7
	Total	13	12	18.5	

جدول رقم (10): الفرقة الخامسة – الفصل الدراسي الثانى

Course code	Course title	No. Of hours per week			PROGRAM ILO'S COVERED
		Lect	Pract.	Total	
PC527	Industrial Pharmacy 2	2	1	2.5	A2, A15, B3, B12,C1, C3, D7
PG528	Phytotherapy	2	2	3	A2, A4, A8, A32, B5, C6, D3, D6, D7
AC525	Quality Control	2	2	3	A2, A11, A18, B1, B2, B4,B16, C3, C4, C6,D4, D7
	Elective 2	1	2	2	
MC524	Drug Design	2	2	3	A14, A15, A17, B2, B5, C7, D4, D5, D7
POC314	Production of Raw Materials	2	2	3	A15, B2, B5, C6, D7
BA510	Accounting and Business Administration	1	-	1	A5, A6, A7, D1, D2, D8, D9
RP520	Research project	1	-	1	A5, B15, C14, D2,D4, D5, D9, D10, D11
	Total	13	11	18.5	

Elective Courses

Course code	Course Title	No. of hours per week			PROGRAM ILO'S COVERED
		Lect.	Pract.	Total	
BC524	Clinical nutrition	2	2	3	A7, B14,C9, D3
PT529	Advanced Pharmacology	2	2	3	A2, A4, A30, B2, C10, C14, D3, D5, D7, D10
POC525	Heterocyclic synthesis of drugs	2	2	3	A15, B2, B5, C6, D7
PG529	Manufacturing and production of crude drugs of natural origin	2	2	3	A12, B2, B5, C6, D6, D7
PC528	Good manufacturing practice (GMP)	2	2	3	A1, A11, A18, B1, B2, B3, B16, C3, D3, D6, D7
MC525	Forensic chemistry	2	2	3	A7, A12, A13, B4, C6

	Total contact hours	PROGRAM ILO'S COVERED
Summer training	300 hr	A5, A6, A8, A37, A38, B1, B2, B3, C15, D1, D2, D3, D7, D11

Appendix 2

Course reports of 2017/2018