



**Benha University
Faculty of Science
Department of Botany**



Botany

B.Sc. Program Specification



Botany B.Sc. Program Specification

A. Basic Information

Program Title:	Botany B.Sc. Program
Program Type:	Single
Department:	Botany Department
Coordinators:	Dr. Abeer Ahmed Khattab Dr. Sabah Abo-ElMaaty Ahmed Dr. Mostafa Y. Nassar

Dates of program specifications approval: /10/2015 (Faculty Council Committee)

The program was evaluated by one external evaluator in 2015

It is now under review by one external evaluator and one internal evaluator

External evaluator: Prof. Dr. Khalid El-DougDoug

Internal evaluator: Dr. Suzan Abdelhalim

Staff members

- A list including the names and contacts of the staff members as in appendix

- **C.V's can be found on the submitted CD**

Dates of program specifications approval: /10/2015

B. Professional Information

1. Program Aims

The Botany program is an academic program produced by **Botany Department**. It aims at introducing knowledge, experience and practices in applied Botany to the students. The following are the aimed graduate attributes:

- Understand the life's basic processes in relation to plants and ecosystems
- Design and conduct experimental work, critically evaluate the outcomes, review and report on practice in botany.
- Understanding the external and internal structure of the different plant organs as well as modification and adaptation of each plant with the habit condition. General information about water relationships, enzymes respiration, photosynthesis and growths' as well as introduction to plant ecology, viruses, fungi, bacteria and algae. The comparative botany of the Bryophyta and Pteridophyta where both sporangia and gametangia always multicellular including habit and habitat, external and internal structure of the



plant body, reproduction and reproductive organs, alternation of generation, classification and relationships. It finally covers the types of habitats and conditions based on soil structure, physical and chemical properties of the soil as well as water contents of the soil

- d) Be acquainted with the modern subjects in botany bio-techniques
- e) Develop the skills and attitude necessary for independent learning and participate effectively in research activities or different areas of work.
- f) Participate effectively in quality control processes.

- g) Understand the interaction between plants and their habitats. Types of vegetation as well as units of succession and life forms of plants. Studying vegetation including analytical and synthetic characters as well as quantitative methods of vegetation analysis. Components of the ecosystem (water, solid earth and atmosphere, time)

2. Intended Learning Outcomes (ILO's)

2.1 Knowledge and Understanding

The graduates of the **Botany** program should be able to:

- a.1 Recognize the general properties of plant kingdom which can proceed from two approaches
 - 1) Static which is concerned with forms and structures
 - 2) Dynamic which is concerned with function (metabolism , productivity).
- a.2 State factor affecting growth and distribution of plants.
- a.3 Describe the of properties plant are concerned with the description and arrangement of living and plant species (taxonomy and systematic)
- a.4 Understand ecology, vegetation, plant interaction factor affecting of plant community methods of studying vegetation to get knowledge and understanding about the flow and cycle of the energy and resources.
- a.5 Recognize host parasite relationship as well as diseases caused by viruses, bacteria and fungi. Microbial metabolism as well as different microbial transformation.
- a.6 State chemical composition of the plant cell , different types of stress, different types of media for isolation and identification of microorganism
- a.7 Explain the different methods for separation, investigation and identification of chemical compounds may be present in plant body

2.2 Intellectual Skills

The graduates of the **Botany** program should be able to:

- b.1 Interpret the differences between worlds of plants.



- b.2 Assess the interrelationships and the impact of a plant on its ecosystem.
- b.3 Point out different concepts in different branches of microbiology.

2.3 Skills

2.3.1 Professional and Practical Skills

On successful completion of the graduates of the **Botany** program should be able to:

- c.1 Collect and investigate the different types of plant specie
- c.2 Isolate and characterize the different types of microorganisms.
- c.3 Analyze the extracts and active constituents from cultivated, wild and, medicinal plants
- c.4 Summarize the important role of plants, microorganisms in our life
- c.5 Assess risk in laboratory work taking into consideration the specific hazards associated with the use of microbial, chemical materials as well as the safe and proper operation of the laboratory techniques, conduct standard laboratory procedures involved in microbiology.

2.3.2 General Skills

The graduates of the **Botany** program should be able to:

- d.1 Use computers and internet for communication, data handling and word processing.
- d.2 Collaborate effectively with team work members to maintain independent and critical thinking, effective time-management and positive communication and cooperation with other members of the teamwork.
- d.3 Effectively manage tasks, time, and resources.
- d.4 Search for information and engage in life-long self learning discipline.
- d.5 Help raising public awareness of the benefits of conserving intellectual property rights and scientific patents on the individuals and communities.
- d.6 Assess the microbiological safety.

3- Academic standards of the program

The program outcomes are derived from the Egyptian National Academic Reference Standards (NARS) for Single programs in Science Faculties (Botany)

4- Reference indices (Benchmarks)

The program outcomes are derived from our Academic Reference Standards (NARS) for Single programs in Science Faculties (Botany).



5- Program structure and contents

a- **Program duration:** four levels (8 semesters)

b- **Program structure:**

Program	Credit hours
Compulsory	98
Optional	-
Elective	42
Total	140

Program	Credit hours	Percentage
Basic sciences	33	23.57 %
Humanities (including language)	5	3.57 %
Specialized courses	97	69.29 %
Computer and IT	5	3.57 %
Total	140	100 %

d- **Program Courses:**

- Symbols in the list and their meanings

Connotation	Symbol
University requirement	Ur
Faculty requirement	Fr
Botany	B
Chemistry	Ch
Entomology	E
Geology	G
Mathematics	M
Physics	Ph
Zoology	Z



a- Compulsory courses:

The student studies (66 credit hours) after completion the first level:

Code No.	Course Title	No. of Units	No. of hours/Week			Level
			Lect.	Exer.	Prac.	
015 Ur	English (1)	2	2	-	-	first
030 Ur	Computer Science (1)	3	2	-	2	first
040 Ur	Computer Science (2)	2	1	-	2	first
050 Ur	Human Rights	1	1	-	-	first
100 M	General Mathematics (1)	3	2	2	-	first
100 Ph	General Physics (1)	2	2	1	-	first
180 Ph	Practical Physics (1)	1	-	-	3	first
-	General Geology (2)	2	2	-	1	first
181 Ph	Practical Physics (2)	1	-	-	3	first
100 Ch	General Chemistry (1)	2	2	1	-	first
180 Ch	Practical Chemistry (1)	1	-	-	3	first
101 B	General Botany (2)	2	2	-	1	first
181 Ch	Practical Chemistry (2)	1	-	-	3	first
100 G	General Geology (1)	2	1	-	2	first
100 Z	General Zoology (1)	2	1	-	2	first
100 B	General Botany (1)	2	1	-	2	first
Second Level (1st semester)						
211 B	Economic Plant	1	1	-	-	Second
221 B	Plant Morphology and Anatomy	3	2	-	2	Second
241 B	Plant Ecology	3	2	-	2	Second
251 B	Plant Physiology	3	2	-	2	Second
273 B	Phycology	3	2	-	2	Second
291B	General Microbiology	3	2	-	2	Second
211 Ch	Organic Aliphatic Chemistry (1) or Physical & Inorganic Chemistry	3	2	-	3	Second
250 Ch		3	2	-	3	Second
Second Level (2nd semester)						



212 B	Molecular Biology	2	2	-	-	Second
232 B	Plant Taxonomy	3	2	-	2	Second
252B	Enzymes and Plant Hormons	4	3	-	2	Second
241M	Biostatistics	3	3	-	-	Second
250 Ch	Physical & Inorganic Chemistry	3	2	-	3	Second
240 E	General Entomology (3)	3	2	-	2	Second
219 G	Plant fossils	3	2	-	2	Second
Third Level (1st semester)						
321 B	Advanced Plant Anatomy	3	2	-	2	Third
323 B	Plant Cytology and Genetics	2	1	-	2	Third
333 B	Advanced Medicinal Plant	3	2	-	2	Third
340 B	Scientific Field Trip	1	-	-	2	Third
341B	Phytogeography	2	2	-	-	Third
343 B	Water Relations	2	2	-	-	Third
323 Ph	Biophysics	3	2	-	3	Third
351 B	Mineral nutrition	3	2	-	2	Third
	or					
374 B	Ecology of Algae	3	2	-	2	Third
Third Level (2nd semester)						
332 B	Advanced Plant Taxonomy	3	2	-	2	Third
334 B	Egypt Flora	2	2	-	-	Third
342 B	Plant Community	3	2	-	2	Third
344 B	Green Houses and Ecological Systems	3	2	-	2	Third
344 Ph	Radiation Physics	3	3	-	-	Third
312 B	Psittidophyta and Angiosperm	3	2	-	2	Third
	or					
374 B	Ecology of Algae	3	2	-	2	Third
Fourth Level (1st semester)						
400 B	Research article	2	-	-	-	Fourth



411 B	Seeds Biology	3	2	-	2	Fourth
431 B	Palynology	3	2	-	2	Fourth
451 B	Stress Physiology	3	2	-	2	Fourth
453 B	Standard Analyses and Pollution	3	2	-	2	Fourth
281 B	Virology	3	2	-	2	Fourth
271 B	Bacteriology	3	2	-	2	Fourth
261 B	Mycology	3	2	-	2	Fourth
Fourth Level (2nd semester)						
442 B	Ecology of Salty and Dried Plants	3	2	-	2	Fourth
452 B	Secondary plant metabolism	3	2	-	2	Fourth
454 B	Tissue culture	3	2	-	2	Fourth
352 B	Phytochemistry	3	2	-	2	Fourth
397 B	Plant pathogenic microorganism	3	2	-	2	Fourth
271 B	Bacteriology	3	2	-	2	Fourth

6- Contents of the Courses

See course specification forms

7- Program admission requirements:

- Faculty of Benha Science accepts students who have a high school (the scientific branches) or equivalent according to the admission requirements specified by the Supreme Council of Universities.
- Faculty of Benha Science accepts transfer students from other science faculties; provided that the number of credit hours that were studied not more than 50% of the total number of credit hours necessary for his graduation. The student is exempt from the courses studied by successfully whatever their level.

8- Regulations for progression and program completion:

According to the bylaw of the faculty of Benha Science, the regulations for progression and program completion are:

▪ Joining the Program:

1. Vice Dean for Education and Student Affairs supervises on the implementation of the registration rules and procedures and prepare menus for each of the study groups, schedule, distribute students gentlemen academic advisers, processing cards courses for students which is about cards individual for each course as well as cards total for each



student, that academic record data in accredited private records, and the completion of enrollment of students in the first week of the start of the semester.

2. Students may register early, after announcing the results of the spring.
3. Take into account when you log decision student success in Prerequisite if any.
4. A student who was not able to register for compelling reasons approved by the Student Affairs Committee and approved by the College Board to register record late in the additional period for registration (the second week).
6. Student selects one branch to research and essay from two specialized branches.

▪ **Study load:**

Students are allowed to register in at least 14 credit hours and no more than 19 credit hours per semester. With the exception of the following cases:

1. A student can superior (who has a cumulative average of 3 or more) that adds to its two hours, certified in one semester and a maximum of 8 credit hours throughout the study period in decisions, additional optional requirements, specialization departments, college different, that is added appreciation where to CGPA It is not permitted to be an elective requirement for another decision.
2. The College Board may increase the maximum for the academic workload in the last semester of the student up to a maximum of four credit hours to complete graduation requirements.
3. Not allows the student who has a cumulative rate (1) to register in more than 12 credit hours in a semester.

▪ **Additions, deletions, withdraw and modify the path:**

1. Any student after the approval of the academic advisor to add or delete scheduled or two until the end of the second week only study and without prejudice to the burden stipulated.
2. Student may withdraw from the study any decision until the end of the seventh week of the start of registration for the semester with the approval of the academic advisor. The record of this decision in the student's academic record estimate "withdrawn" on the condition that the student does not have absenteeism overruns before the withdrawal. In addition, cases before the forced withdrawal over this period the Commission Education and Student Affairs for consideration and approval of the Faculty Council on the withdrawal shall be without prejudice boarding school student.
3. A student may alter the course of the specialization subject to the completion of the requirements of specialization desirable and not counting credit hours, which the student obtained by not located in the area of the requirements of the new specialization and after the approval of the academic advisor and the Committee on Education and Student Affairs and the College Board on this amendment.

▪ **Stop registration or drop out**



1. Stop registration: the student can apply to stop his registration for one semester and a maximum of four separate classes are connected and for compelling reasons approved by the College Board.
2. Dropout: the student can re-record if he dropouts for maximum two semesters and for compelling reasons approved by the College Board.

▪ **Attendance:**

1. The instructor shall register the presence of students at the start of each lecture theory or process in a practical period Prepared for by the Student Affairs and delivers this record at the end of the semester to manage the affairs of Students.
 2. When the student exceeds the absence of 10% of the scheduled hour's instructor shall notify the Department of Affairs Students to guide the first warning to the student.
 3. When the student exceeds the proportion of the absence of 20% of the scheduled hour's instructor shall notify the Department Student Affairs to direct second and final warning to the student.
 4. If increased absenteeism 25% of the total scheduled hours and the absence of a student without an acceptable excuse Student Affairs Committee and approved by the College Board, student records estimate" deprived" decision and intervention as a result of failure to calculate the cumulative average of the student.
 5. If increased absenteeism was 25% and the absence of the student excuse acceptable to the Commission, Education and Student Affairs and approved by the College Board, student records withdraw from the course.
 6. In the case of a request student, Add a new decision attendance is calculated from the date of registration.

9- Methods and rules of evaluation of students in rolled in the program:

Rating: The exam is evaluated each courses at 100 degrees and distributed degrees scheduled as the follows:

9.1- Courses, which did not include the part "practical":

Method of Assessment	Marks	learning outcomes assessed	Weighting
Midterm exam & Semester work	10	Knowledge and understanding (a1-a5); intellectual (b1-b3); professional and general skills (c5, d1-d4)	10%
Final Oral Exam	10	Knowledge and understanding (a1-a5); intellectual skills (b1-b3)	10 %
Final Term Examination	80	Knowledge and understanding (a1-a7); intellectual skills (b1-b3).	80%
	100		100 %



9.2-Courses practical separate

Method of Assessment	Marks	learning outcomes assessed	Weighting
Midterm exam & Semester work	20	Knowledge and understanding (a1-a5); intellectual (b1-b3); professional and practical (c5, d1-d3); and general (d3) skills.	20%
Final Oral Exam	20	Knowledge and understanding (a1-a4); intellectual skills (b1-b6)	20 %
Final practical Examination	60	Intellectual (b1,b3); professional (c1-c5) and practical; and general skills(d6).	60%
Total	100		100%

9.3 Courses, which include part "practical":

Part	Marks	Method of Assessment	Learning outcomes assessed	Weighting	
Practical part	40	8	Midterm exam & Semester work for practical part	Knowledge and understanding (a1-a5); intellectual (b1-b3); professional and practical (c5, d1-d3); and general (d3) skills.	8 %
		8	Final Oral Exam for practical part	Knowledge and understanding (a1-a7); intellectual skills (b1-b3)	8 %
		24	Final practical Examination	Intellectual (b1,b3); professional and practical (c1-c5); and general skills(d3).	24 %
Theoretical part	60	6	Midterm exam & Semester work for theoretical part	Knowledge and understanding (a1-a7); intellectual (b1-b3); professional and general skills (c5, d1-d6)	6 %
		6	Final Oral Exam for theoretical part	Knowledge and understanding (a1-a7); intellectual skills (b1-b3)	6 %
		48	Final Term Examination	Knowledge and understanding (a1-a7); intellectual skills (b1-b3).	48 %
	100			100	

60% of the total score lecture semester work for final oral exam.

9.4 Course search and essay

1. 50% of the total score for the course of the various activities carried out by the student during his study of the course.
2. 50% of the total scores for the course of the discussion session.

The following grading system is applied:



Grades	Symbols	No. of points	Degree
Excellent	A	4	90% — 100%
	A-	3.7	85% — <90%
Very Good	B+	3.3	80% — <85%
	B	3	75% — <80%
Good	B-	2.7	70% — <75%
	C+	2.3	65% — <70%
Pass	C	2	60% — <65%
Fail	F	0	<60%
Absent	F-	0	—

10- Teaching and learning strategies used in the program:

- a. Direct teaching strategy.
- b. Cooperative learning strategy.
- c. Brainstorming strategy.
- d. Problem-solving strategy.
- e. Effective discussion strategy.
- f. Independent Study strategy.
- g. E-learning strategy.

11- Methods of program evaluation: (Appendix 6)

Samples	Tool	Evaluators
1- Senior Students	Questionnaire	100%
2- Alumni	Questionnaire	100%
3- External Evaluators	Reports	

The responsible person for the program: Prof. Mahmoud Amer



**Benha University
Faculty of Science
Department of Botany**



Chemistry and Botany B.Sc. Program Specification



Chemistry and Botany B.Sc. Program Specification

A. Basic Information

Program Title:	Chemistry and Botany B.Sc. Program
Program Type:	Double
Department:	Botany Departement
Coordinator:	Dr. Mohamed O. Abdel-Monem

Assistant Co-ordinator: DR:DINA BARAKA
DR:ATTIA AHMED ATTIA
Dr. Reyad elsharkawy

Dates of program specifications approval: Faculty council committee: 9 /12/2015

B. Professional Information

1. Program Aims

It aims at introducing knowledge, experience and practices in applied Botany and chemistry to the students. The following are the aims describe:

- Describe the life's basic processes in relation to plants and ecosystems
- Design and conduct experimental work, critically evaluate the outcomes, review and report on practice in botany and chemistry
- Identify the external and internal structure of the different plant organs as well as modification and adaptation of each plant with the habit condition. In addition general information about water relationships, enzymes respiration, photosynthesis and growths' as well as introduction to plant ecology, viruses, fungi, bacteria and algae. The comparative botany of the Bryophyta and Pteridophyta where both sporangia and gametangia always multicellular including habit and habitat, external and internal structure of the plant body, reproduction and reproductive organs, alternation of generation, classification and relationships. It finally covers the types of habitats and conditions based on soil structure, physical and chemical properties of the soil as well as water contents of the soil
- Identify the modern subjects in botany & Chemistry and bio-techniques.
- Develop the skills and attitude necessary for independent learning and participate effec-



- tively in research activities or different areas of work.
- f) Participate effectively in quality control processes.
- g) Describe the interaction between plants and their habitats. Types of vegetation as well as units of succession and life forms of plants. Studying vegetation including analytical and synthetic characters as well as quantitative methods of vegetation analysis. Components of the ecosystem (water, solid earth and atmosphere, time)

2. Intended Learning Outcomes (ILO's)

a. Knowledge and Understanding

By the end of this program, the graduates of the **Chemistry and Botany** program should be able to:

- a.1 Describe the general properties of plant kingdom which can proceed from two approaches
- 1) static which is concerned with forms and structures
 - 2) Dynamic which is concerned with function (metabolism , productivity).
- a.2 State factor affecting growth and distribution of plants.
- a.3 Describe the of properties plant are concerned with the description and arrangement of living and plant species (taxonomy and systematic)
- a.4 Describe ecology, vegetation, plant interaction factor affecting of plant community methods of studying vegetation to get knowledge and understanding about the flow and cycle of the energy and resources.
- a.5 Describe host parasite relationship as well as diseases caused by viruses, bacteria and fungi. Microbial metabolism as well as different microbial transformation.
- a.6 state chemical composition of the plant cell , different types of stress, different types of media for isolation and identification of microorganism
- a.7 Explain the different methods for separation, investigation and identification of chemical compounds may be present in plant body
- a.8 Mention the principles of procedures and techniques used in chemical analysis, characterization and structural investigations of different chemical compounds.
- a.9 Identify the current issues of chemical research and technological development.
- a.10 Characterize structure and morphology of different chemical compounds using different spectroscopic and analytical techniques.
- a.10 Identify the major types of chemical reactions, their characteristics and mechanisms as well as their kinetics including catalysis.
- a.11 State the principles of thermodynamics and quantum mechanics including their applications in chemistry.

b. Intellectual Skills

The graduates of the **Chemistry and Botany** program should be able to:



- b.1 Interpret the differences between worlds of plants.
- b.2 Assess the interrelationships and the impact of a plant on its ecosystem.
- b.3 Analyze chemical data to identify and confirm chemical structures as well as determine chemical composition.
- b.4 Integrate and link information across different approaches studied in different areas of chemistry.
- b.5 Point out different concepts in different branches of microbiology.

c. Professional and Practical Skills

On successful completion of the graduates of the **Chemistry and Botany** program should be able to:

- c.1 Collect and investigate the different types of plant specie
- c.2 Isolate and characterize the different types of microorganisms.
- c.3 Analyze the extracts and active constituents from cultivated, wild and, medicinal plants
- c.4 Summarize the important role of plants, microorganisms in our life
- c.5 Assess risk in laboratory work taking into consideration the specific hazards associated with the use of microbial, chemical materials as well as the safe and proper operation of the laboratory techniques, conduct standard laboratory procedures involved in microbiology and analytical chemistry
- c.6 Perform standard laboratory procedures in analytical, physical, organic and inorganic chemistry.
- c.7 Examine the physical and chemical properties of compounds.

d. General Skills

The graduates of the **Chemistry and Botany** program should be able to:

- d.1 Use computers and internet for communication, data handling and word processing.
- d.2 Collaborate effectively with teamwork members to maintain independent and critical thinking, effective time-management and positive communication and cooperation with other members of the teamwork.
- d.3 Effectively manage tasks, time, and resources.
- d.4 Search for information and engage in life-long self learning discipline.
- d.5 Help raising public awareness of the benefits of conserving intellectual property rights and scientific patents on the individuals and communities.
- d.6 Assess the microbiological safety.

3- Academic standards of the program



The program outcomes are derived from our Academic Reference Standards (ARS) for Single programs in Science Faculties (**Chemistry and Botany**).

4- Reference indices (Benchmarks)

Not utilized

5- Program structure and contents

a- **Program duration:** four levels (8 semesters)

b- **Program structure:**

Program	Credit hours
Compulsory	108
Optional	6
Elective	26
Total	140

Program	Credit hours	Percentage
Basic sciences	27	19.29 %
Humanities (including language)	3	2.14 %
Specialized courses	105	75.00 %
Computer and IT	5	3.57 %
Total	140	100 %

- **Field training: 6 weeks**

d- **Program Courses:**

- Symbols in the list and their meanings

Connotation	Symbol
University requirement	Ur
Faculty requirement	Fr
Botany	B
Chemistry	Ch
Entomology	E
Geology	G
Mathematics	M
Physics	Ph



a- Compulsory courses:

The student studies (66 credit hours) after completion the first level:

Code No.	Course Title	No. of Units	No. of hours/Week			Level
			Lect.	Exer.	Prac.	
015 Ur	English (1)	2	2	-	-	first
030 Ur	Computer Science (1)	3	2	-	2	first
040 Ur	Computer Science (2)	2	1	-	2	first
050 Ur	Human Rights	1	1	-	-	first
100 M	General Mathematics (1)	3	2	2	-	first
100 Ph	General Physics (1)	2	2	1	-	first
180 Ph	Practical Physics (1)	1	-	-	3	first
-	General Geology (2)	2	2	-	1	first
181 Ph	Practical Physics (2)	1	-	-	3	first
100 Ch	General Chemistry (1)	2	2	1	-	first
180 Ch	Practical Chemistry (1)	1	-	-	3	first
101 B	General Botany (2)	2	2	-	1	first
181 Ch	Practical Chemistry (2)	1	-	-	3	first
100 G	General Geology (1)	2	1	-	2	first
100 Z	General Zoology (1)	2	1	-	2	first
100 B	General Botany (1)	2	1	-	2	first
211 B	Economic Plant	1	1	-	-	Second
221 B	Morphology and Anatomy	3	2	-	2	Second
232 B	Plant taxonmy	3	2	-	2	Second
241 B	Plant ecology	3	2	-	2	Second
251 B	Plant physiology	3	2	-	2	Second
312 B	Ptroidophyta and Angiosperm	3	2	-	2	Third
332 B	Advanced Plant taxonmy	3	2	-	2	Third
334 B	Flora	3	2	-	2	Third
341 B	Phytogeography	2	2	-	-	Third
324 B	Plant Community	2	2	-	-	Third
333 B	Medicinal plant	1	1	-	1	second
456 B	Growth and hormones	3	1	-	3	Fourth
212 Ch	Aromatic chemistry (1)	2	2	-	1	Second
217 Ch	Organic aliphatic chemistry	3	2	-	3	Second



222 Ch	Inorganic Chemistry	2	2	-	1	Second
231 Ch	Chemical Thermodynamics	2	2	-	-	Second
234 Ch	Electrochemistry	2	2	-	1	Second
242 Ch	Analytical Chemistry	3	2	-	٣	Second
310 Ch	Organic reaction mechanism (2)	2	2	-	-	Third
317 Ch	Applied organic spectroscopy	3	2	-	3	Third
323 Ch	Transition element & Coordination Chemistry	2	٢	-	-	Third
332 Ch	(Phys Chem) Surface, catalysis, colloidal & solid state	3	3	-	-	Third
333 Ch	Physical chemistry (3)	1	1	-	-	Third
424 Ch	Advanced inorganic chemistry	2	2	-	-	Fourth
433 Ch	Applied Electrochemistry (2)	2	2	-	-	Fourth
443 Ch	Instrumental chemistry (2)	3	2	-	3	Fourth
400 ch or B	Research article	2		-	-	Fourth

b- Elective courses:

a.1 Elective compulsory

The student studies (12 credit hours)

Code No.	Course Title	No. of Units	No. of hours/week			level
			Lect.	Exer.	Prac.	
215 B	Principles of Genetcis	3	2	-	2	Second
235 G	Crystal and minarology	3	2	-	2	Second
241M	Statistical and computer science	3	3	-	-	Second
219 G	Plant fossils	3	2	-	2	Second

b.2 Elective optional

The student studies (24 credit hours)

Code No.	Course Title	No. of Units	No. of hours/week			level
			Lect.	Exer.	Prac.	
261 B	Systematic of fungi	3	2	-	2	Second
273 B	Phycology	3	2	-	2	second
291 B	Genral Microbiology	3	2	-	2	Second



351 B	Mineral nutrition	3	2	-	2	Third
352 B	Phytochemistry	3	2	-	2	Third
364 B	Plant pathogenic fungi	3	2	-	2	Third
431 B	Palynology	3	2	-	2	Fourth
452 B	Secondary plant metabolism	3	2	-	2	Fourth
453 B	Standard analyses	3	2	-	2	Fourth
454 B	Tissue culture	3	2	-	2	Fourth
215 Ch	Green chemistry	2	2	-	-	second
319 Ch	Chemistry of petroleum and petrochemicals	3	2	-	3	Third
330 Ch	Inorganic chemistry (3)	3	3	-	-	Third
325 Ch	Physical chemistry (3)	3	3	-	-	Third
342 Ch	Analytical chemistry (2)	3	2	-	3	Third
418 Ch	Aromatic Heterocyclic and natural products	2	2	-	-	Fourth
419 Ch	Carbohydrates, amino acids and lipids	3	2	-	3	Fourth
440Ch	Selected articles (Advanced analytical chemistry)	3	3	-	-	Fourth

c- Optional courses:

The student studies (6 credit hours)

Code No.	Course Title	No. of Units	No. of hours/week			level
			Lect.	Exer.	Prac.	
211 M	Advanced differentiation and integration	3	2	2	-	Second
240 E	General entomology	3	2	-	2	Second
323Ph	Biophysics	3	3	-	-	Third
312 B	Insecticides	3	2	-	2	Third

6- Contents of the Courses

See course specification (Appendix 4)

7- Program admission requirements

- Faculty of Benha Science accepts students who have a high school (the scientific branches) or equivalent according to the admission requirements specified by the Supreme Council of Universities.



- Faculty of Benha Science accepts transfer students from other science faculties; provided that the number of credit hours that were studied not more than 50% of the total number of credit hours necessary for his graduation. The student is exempt from the courses studied by successfully whatever their level.

- **8- Regulations for progression and program completion:**

According to the bylaw of the faculty of Benha Science, the regulations for progression and program completion in any discipline single or double requirement is 140 credit hours at least distributed as follows: -

- (1) University requirements for a bachelor's degree in any single discipline or double 8 credit hours is mandatory.
- (2) The total requirements for a bachelor's degree in any single discipline or a double is 24 credit hours, including 18 compulsory hours +6 optional hours.
- (3) Specialty requirements for a bachelor's degree in any single discipline or a double is determined by Section 108 certified or relevant departments to specialize hour.
- (4) leads college students summer training for six weeks in the relevant areas of specialization Applied before graduation to not be training only after the student completed 90 credits at least an hour and do not count him credit hours.
- (5) Scientific field trips serve the area of specialization.

- **Joining the Program:**

A - Vice Dean for Education and Student Affairs supervises on the implementation of the registration rules and procedures and prepare menus for each of the study groups, schedule, distribute students gentlemen academic advisers, processing cards courses for students which is about cards individual for each course as well as cards total for each student, that academic record data in accredited private records, and the completion of enrollment of students in the first week of the start of the semester.

B - Students may register early, after announcing the results of the end of the spring.

C - Take into account when you log decision student success in Prerequisite if any.

D - A student who was not able to register for compelling reasons approved by the Student Affairs Committee and approved by the College Board to register record late in the additional period for registration (the second week).

E - Student selects one branch to research and essay from two specialized branches.

- **Study load:**

Students are allowed to register in at least 14 credit hours and no more than 19 credit hours per semester. With the exception of the following cases:

A - A student can superior (who has a cumulative average of 3 or more) that adds to it two hours, certified in one semester and a maximum of 8 credit hours throughout the study period in decisions,



additional optional requirements, specialization departments, college different, that is added appreciation where to CGPA It is not permitted to be an elective requirement for another decision.

B-The College Board may increase the maximum for the academic workload in the last semester of the student up to a maximum of four credit hours to complete graduation requirements.

C - Not allows the student who has a cumulative rate (1) to register in more than 12 credit hours in a semester.

▪ **Additions, deletions, withdraw and modify the path:**

A - Any student after the approval of the academic advisor to add or delete scheduled or two until the end of the second week only study and without prejudice to the burden stipulated.

B - Student may withdraw from the study any decision until the end of the seventh week of the start of registration for the semester with the approval of the academic advisor. The record of this decision in the student's academic record estimate "withdrawn" on the condition that the student does not have absenteeism overruns before the withdrawal. And cases before the forced withdrawal over this period the Commission Education and Student Affairs for consideration and approval of the Faculty Council on the withdrawal shall be without prejudice boarding school student.

C - A student may alter the course of the specialization subject to the completion of the requirements of specialization desirable and not counting credit hours, which the student obtained by not located in the area of the requirements of the new specialization and after the approval of the academic advisor and the Committee on Education and Student Affairs and the College Board on this amendment.

▪ **Stop registration or drop out**

A - Stop registration: the student can apply to stop his registration for one semester and a maximum of four separate classes are connected and for compelling reasons approved by the College Board.

B - Dropout: the student can re-record if he dropouts for maximum two semesters and for compelling reasons approved by the College Board.

▪ **Attendance:**

A - The instructor shall register the presence of students at the start of each lecture theory or process in a practical period Prepared for by the Student Affairs and delivers this record at the end of the semester to manage the affairs of Students.

B - When the student exceeds the absence of 10% of the scheduled hour's instructor shall notify the Department of Affairs Students to guide the first warning to the student.

C - When the student exceeds the proportion of the absence of 20% of the scheduled hour's instructor shall notify the Department Student Affairs to direct second and final warning to the student.

D - If increased absenteeism 25% of the total scheduled hours and the absence of a student without an acceptable excuse Student Affairs Committee and approved by the College Board, student records estimate "deprived" decision and intervention as a result of failure to calculate the cumulative average of the student.

E - If increased absenteeism was 25% and the absence of the student excuse acceptable to the Commission, Education and Student Affairs and approved by the College Board, student records withdraw from the course.



F - In the case of a request student Add a new decision attendance is calculated from the date of registration.

9- Methods and rules of evaluation of students in rolled in the program:

Rating:

The exam is evaluated each courses at 100 degrees and distributed degrees scheduled as follows:

9.1 courses which did not include the part "practical"

Method of Assessment	Weighting	learning outcomes assessed
Mid term exam & Semester work	10%	Measure knowledge, understanding, intellectual, professional and general skills.
Final Oral Exam	10 %	Measure knowledge, understanding and intellectual skills.
Final Term Examination	80%	Measure knowledge, understanding and intellectual skills.

9.2 courses practical separate

Method of Assessment	Weighting	learning outcomes assessed
Mid term exam & Semester work	20%	Measure knowledge, understanding, intellectual, professional, practical and general skills.
Final Oral Exam	20 %	Measure knowledge, understanding and intellectual skills.
Final practical Examination	60%	Measure knowledge, understanding, intellectual, professional and practical skills.

9.3 courses which include part "practical"

Method of Assessment		Weighting	learning outcomes assessed	
Theoretical	60	Final Term Examination	48 %	Measure knowledge, understanding and intellectual skills.
		Final Oral Exam	14 %	Measure knowledge, understanding and intellectual skills.
Practical	40	Final practical Examination	24 %	Measure knowledge, understanding, intellectual, professional and practical skills
		Mid term exam & Semester	14 %	Measure knowledge, understanding,



	work		intellectual and general skills.
--	------	--	----------------------------------

50% of the total score lecture semester work for final oral exam.

9.4 Course search and essay

A - 50% of the total score for the course of the various activities carried out by the student during his study of the course.

B- 50% of the total scores for the course of the discussion session.

The following grading system is applied:

Grades	Symbols	No. of points	Degree
Excellent	A	4	90% — 100%
	A-	3.7	85% — <90%
Very Good	B+	3.3	80% — <85%
	B	3	75% — <80%
Good	B-	2.7	70% — <75%
	C+	2.3	65% — <70%
Pass	C	2	60% — <65%
Fail	F	0	<60%
Absent	F-	0	—

10. Teaching and learning strategies used in the program:

- Direct teaching strategy.
- Cooperative learning strategy.
- Brainstorming strategy.
- Problem-solving strategy.
- Effective discussion strategy.
- Independent Study strategy.

11. Methods of program evaluation: (Appendix 6)

Samples	Tool
1- Senior Students	Questionnaire
2- Alumni	Questionnaire



Benha University
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Department of Botany



3- External Evaluators	Reports
4- Stakeholders	Questionnaire, workshops, seminars, conferences

Head of the Department:
Date:

Prof. Dr. Mahmoud amer
2015 / 2016



Benha University
Faculty of Science
Department of Botany





Benha University
Faculty of Science
Department of Botany



Chemistry and Microbiology B.Sc. Program Specification



Chemistry and Microbiology B.Sc. Program Specification

A. Basic Information

Program Title:	Chemistry and Microbiology B.Sc. Program
Program Type:	Double
Department:	Botany Departement
Coordinators:	Dr. Mohamed O. Abdel-Monem Dr. Mohamed A. Nasr-Eldin

Dates of program specifications approval: 11 /5/2011 (Faculty Council Committee)

The program was evaluated by one external evaluator in 2015

It is now under review by one external evaluator and one internal evaluator

External evaluator: Dr. Khalid Eldougoug

Internal evaluator: Dr. Suzan Abdelhalim

Staff members

- A list including the names and contacts of the staff members as in appendix

- **C.V's can be found on the submitted CD**

B. Professional Information

1. Program Aims

Chemistry and Microbiology program is an academic program by **Botany Department**. It aims at introducing knowledge, experience and practices in Chemistry and Microbiology to the students. The following are the aimed graduate attributes:

- Recognize the basic processes in relation to microorganisms and ecosystems.
- Design and conduct experimental work, critically evaluate the outcomes, review and report on practice in Chemistry and Microbiology
- Be acquainted with the advanced subjects in Microbiology & Chemistry and bio-techniques
- Develop the skills and attitude necessary for independent learning and participate effectively in research activities or different areas of work.
- Participate effectively in quality control processes relevant to the taught program.
- Utilize scientific facts and theories to analyze and interpret data of different methods.
- Abide by ethics which related to the environment preservation and human health and other welfare.

2. Intended Learning Outcomes (ILO's)



2.1 Knowledge and Understanding

The graduates of the **Chemistry and Microbiology** program should be able to

- a.1 Recognize the general properties of microorganisms and its role in ecosystem.
- a.2 Determine factors affecting growth and distribution of plants and associated microorganisms.
- a.3 Describe the external and internal structure of plants and different types of microorganisms.
- a.4 Understand the classification of microorganisms according to new trends.
- a.5 Memorize the physiological aspects of microorganisms, plants and medical importance of microorganisms (viruses, bacteria and fungi) and plants
- a.6 Understand microbial genetics including plasmid isolation, gene transformation, recombination of DNA and transgenic plants.
- a.7 Recognise host parasite relationship as well as diseases caused by viruses, bacteria and fungi. Microbial metabolism as well as different microbial transformation.
- a.8 Characterize microbial industrialization including production of antibiotic, organic acids, biogas, vitamins and single cell protein. Microorganisms and immunity.
- a.9 Understand the principles of procedures and techniques used in chemical analysis, characterization and structural investigations of different chemical compounds.
- a.10 Recognize the current issues of chemical research and technological development.
- a.11 Characterize structure and morphology of different chemical compounds using different spectroscopic and analytical techniques.
- a. 12 Recognize major types of chemical reactions, their characteristics and mechanisms as well as their kinetics including catalysis, State the principles of thermodynamics and quantum mechanics including their applications in chemistry
- a. 13 Understand the essential facts, major concepts, principles, and theories in basic sciences (entomology, physics, geology, zoology and mathematics) and other sciences to understand the recent advances in Chemistry and Microbiology

2.2 Intellectual Skills

The graduates of the **Chemistry and Microbiology** program should be able to:

- b.1 Interpret the differences between worlds of microorganisms and differences between plant species.
- b.2 Report the interrelationships and the impact of a specific microorganism on its eco-



- system, plant kingdom
- b.3 Confirm the chemical structures.
 - b.4 Formulate the chemical composition.
 - b.5 Develop the different approaches studied in different areas of chemistry.
 - b.6 Construct certain concepts in different branches of microbiology.
 - b.7 Analyze and interpret quantitative data related to the fields of microbiology, chemistry and other basic science from graphs, figures, tables and other sources of information.

2.3 Skills

2.3.1 Professional and Practical Skills

On successful completion of the graduates of the **Chemistry and Microbiology** program should be able to:

- c.1 Prepare and examine the different specimens of microorganisms and assess ecological, physiological and taxonomical characteristics of plants and microorganisms
- c.2 Use the laboratory equipment and instruments to isolate and characterize the different types of microorganisms and in plant analysis
- c.3 Compare between the traditional and recent methods for genetic manipulation of microorganisms
- c.4 Assess risk in laboratory work taking into consideration the specific hazards associated with the use of microbial, chemical materials as well as the safe and proper operation of the laboratory techniques, conduct standard laboratory procedures involved in microbiology and analytical chemistry
- c.5 Show standard laboratory procedures in analytical, physical, organic and inorganic chemistry.
- c.6 Examine the physical and chemical properties of compounds.
- c.7 Write reports on the data in accordance with the standard scientific guidelines.
- c.8 Solve problems by a variety of methods.

2.3.2 General Skills

The graduates of the **Chemistry and Microbiology** program should be able to:

- d.1 Use computers and internet for communication, data handling and word processing.
- d.2 Collaborate effectively with teamwork members to maintain independent and critical thinking, effective time-management and positive communication and cooperation with other members of the teamwork.
- d.3 Effectively manage tasks, time, and resources.
- d.4 Search for information and engage in life-long self learning discipline.
- d.5 Help raising public awareness of the benefits of conserving intellectual property rights and scientific patents on the individuals and communities.
- d.6 Assess the microbiological safety.



3- Academic standards of the program

The academic standard of the program are designed and adapted to satisfy the criteria presented in academic reference standard (ARS) produced by the department of botany council committee. It is approved by the faculty council committee in May, 2015. Currently, it is in the process of approval by the National Authority for Quality Assurance and Accreditation of Education.

4- Reference indices (Benchmarks)

The academic reference standard (ARS) for Chemistry & Microbiology are applied as benchmarks

5- Program structure and contents

a- **Program duration:** four levels (8 semesters)

b- **Program structure:**

Program	Credit hours
Compulsory	98
Optional	-
Elective	42
Total	140

Program	Credit hours	Percentage
Basic sciences	33	23.57 %
Humanities (including language)	5	3.57 %
Specialized courses	97	69.29 %
Computer and IT	5	3.57 %
Total	140	100 %

- **Field training: 6 weeks**

d- **Program Courses:**

- Symbols in the list and their meanings

Connotation	Symbol
University requirement	Ur
Faculty requirement	Fr
Botany	B



Chemistry	Ch
Entomology	E
Geology	G
Mathematics	M
Physics	Ph
Zoology	Z

University requirements:

The student studies (8 credit hours) at first level

Code No.	Course Title	No. of Units	No. of hours/Week			Level
			Lect.	Exer.	Prac.	
015 Ur	English (1)	2	2	-	-	first
030 Ur	Computer Science (1)	3	2	-	2	first
040 Ur	Computer Science (2)	2	1	-	2	first
050 Ur	Human Rights	1	1	-	-	first

Faculty requirements:

a. Compulsory courses

The student studies (18 credit hours) at first level

100 M	General Mathematics (1)	3	2	2	-	first
105 M	General Mathematics (2)	3	2	2	-	first
100 Ph	General Physics (1)	2	2	1	-	first
180 Ph	Practical Physics (1)	1	-	-	3	first
105 Ph	General Physics (2)	2	2	1	-	first
181 Ph	Practical Physics (2)	1	-	-	3	first
100 Ch	General Chemistry (1)	2	2	1	-	first
180 Ch	Practical Chemistry (1)	1	-	-	3	first
105 Ch	General Chemistry (2)	2	2	1	-	first
181 Ch	Practical Chemistry (2)	1	-	-	3	first

b. Elective courses:

The student studies (6 credit hours) at First level,



183 Ch	Inorganic applied Chemistry(1)	1	-	2	-	first
183 Ph	Applied Physics (1)	1	-	2	-	first
185 Ch	organic applied Chemistry (2)	1	-	٢	-	first
185 Ph	Applied Physics (2)	1	-	٢	-	First
100 Z	General Zoology (1)	2	1	-	2	first
105 Z	General Zoology (2)	2	1	-	٢	first
100 B	General Botany (1)	2	1	-	2	first
105 B	General Botany (2)	2	1	-	٢	first
100 G	General Geology (1)	2	1	-	2	first
105 G	General Geology (2)	2	1	-	٢	first
111 IN	General Insects (1)	2	1	-	٢	first
112 IN	General Insects (2)	2	1	-	٢	first
11	Business Administration	2	2	-	-	first
12	History of Sciences	2	2	--	-	first
13	Healthy nutrition	2	2	-	-	first
14	Scientific thinking	2	2	-	-	first
17	Labor Law	2	2	-	-	first
19	Selected subjects from Egypt -----history	2	2	-	-	first

The student must select 100 B and 105 B for Chemistry and Microbiology specialization

Second level courses

Compulsory courses in First Semester						
215 Ch	Green chemistry	2	2	-		Second
217 Ch	Organic aliphatic chemistry	3	2	-	3	Second
231 Ch	Chemical Thermodynamics	2	2	-	-	Second
221 B	Morphology and Anatomy	3	2	-	2	Second
251 B	Plant physiology	3	2	-	2	Second
241 M	Biostatistics	3	3		-	Second
Elective one course in First Semester						



211 M	Advanced differentiation and integration	3	2	2	-	Second
232 B	Plant taxonomy	3	2	-	2	Second
		19	Total credit hours			
Compulsory courses in Second Semester						
212 Ch	Aromatic chemistry (1)	2	2	1	-	Second
222 Ch	Inorganic Chemistry	2	2	1	-	Second
234 Ch	Electrochemistry	2	2	1	-	Second
242 Ch	Analytical Chemistry	3	2	-	٣	Second
215 B	Principles of Genetics	3	2	-	2	Second
235 G	Crystal and mineralogy	3	2	-	2	Second
Elective one course in second Semester						
262 B	Systematic of fungi (1)	3	2	-	2	Second
251 B	Plant physiology	3	2	-	2	Second
		18	Total credit hours			

Third Level Courses

Compulsory courses in First Semester						
317 Ch	Applied organic spectroscopy	3	2	-	3	Third
323 Ch	Transition element & Coordination Chemistry	2	2	-	-	Third
333 Ch	Physical chemistry (3)	1	1	-	-	Third
361 B	Biology of aquatic fungi	3	2	-	2	Third
363 B	Physiology of Fungi	3	2	-	2	Third
393 B	Microbial Toxins	3	2	-	2	Third
Elective one course in first semester						
319 Ch	Chemistry of petroleum and petrochemicals	3	2	-	3	Third
325 Ch	Physical chemistry (3)	3	3	-	-	Third
		18	Total credit hours			



Compulsory courses in Second Semester						
310 Ch	Organic reaction mechanism (2)	2	2	-	-	Third
332 Ch	(Phys Chem) Surface, catalysis, colloidal & solid state	2	2	-	-	Third
318 B	Immunology	3	2	-	2	Third
366 B	Host and Parasite relationship	1	1	-	-	Third
392 B	Microbial Metabolism	3	2	-	2	Third
396 B	Industrial Microbiology	3	2	-	2	Third
Elective one course in Second Semester						
326 Ch	Inorganic chemistry (3)	3	3	-	-	Third
342 Ch	Analytical chemistry (2)	3	2	-	3	Third
		17	Total credit hours			

Fourth level courses

Compulsory courses in First Semester						
400 B	Research and Essay	2	2	-	-	Fourth
433 Ch	Applied Electrochemistry (2)	1	1	-	-	Fourth
443 Ch	Instrumental chemistry (2)	3	2	-	3	Fourth
453 B	Standard Analysis	3	2	-	2	Fourth
213 B	Medical Microbiology	3	2	-	2	Fourth
271 B	Bacteriology	3	2	-	2	Fourth
Elective one course in First semester						
419 Ch	Carbohydrates, amino acids and lipids	3	2	-	3	Fourth
440Ch	Selected articles (Advanced analytical chemistry)	3	3	-	-	Fourth
		18	Total credit hours			
Compulsory courses in Second Semester						



418 Ch	Aromatic Heterocyclic and natural products	2	2	-	-	Fourth
424 Ch	Advanced inorganic chemistry	2	2	-	-	Fourth
212 B	Molecular Biology	2	2	-	-	Fourth
273 B	Phycology	3	2	-	2	Fourth
281 B	Virology	3	2	-	2	Fourth
324 Z	parasitology	3	2	-	2	Fourth
Elective one course in Second Semester						
498 B	Food Microbiology	3	2	-	2	Fourth
323Ph	Biophysics	3	2	-	3	Fourth
		18	Total credit hours			

6- Contents of the Courses

See apendex (4)

7- Program admission requirements

The criteria for admitting students BSC program in science is the total score in the national secondary school examination (usually to exceed 88%) as well as a geographic factor: admission criteria are essentially set by the Higher Education authorities.

The number of students to attend the program in its first year (preparatory year is 650 students),(credit hours). It has been ratified by the Higher Education authorities .the faculty program duration is 4 years (8 semesters at least). i.e4 years, autum and spring.

The final secondary school degree (thanaweyaAmma), the mathematics section and science section) or their equivalent is a prerequisite for admission to faculty of science. Admission to Benha university is restricted to students living in some neighboring districts.The number of students legible to apply for admission to faculty programs is about 738.Among those, a maximum of number of xxx are admitted to the faculty .Students at any of the programs varied among the faculty programs.

8- Regulations for progression and program completion:

Administration and acceptance produces the plan of registration and its procedure, list of students, admitted to the course of the desired program, study groups, schedule of program, and distribution of the academic advisor and approved his\her role. The total courses for



each individual student provided in cards and academic record data are introduced into special documents and approved by the faculty. The academic advisor helps and guides the students on the process and appropriate selection based on the desired of each student. The student can be registered from the week before the start of first semester, and admitted to the program at the first week of the semester. When the student registered for any course at any level, he or she should have been succeeded in the prerequisite course. The course can be study coincidentally with the request course. The student how failed to register, due to any urgent reason, can be register during the second week provide the approval of the faculty dean. In case of the student registered for the essay and research course in any of the double programs, he or she should be free (eligible) to choose it from any of these programs.

According to the bylaw of the faculty of Benha Science, the regulations for progression and program completion in any discipline single or double requirement is 140 credit hours at least distributed as follows: -

- (1) University requirements for a bachelor's degree in any single discipline or double 8 credit hours is mandatory.
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A - Vice Dean for Education and Student Affairs supervises on the implementation of the registration rules and procedures and prepare menus for each of the study groups, schedule, distribute students gentlemen academic advisers, processing cards courses for students which is about cards individual for each course as well as cards total for each student, that academic record data in accredited private records, and the completion of enrollment of students in the first week of the start of the semester.

B - Students may register early, after announcing the results of the end of the spring.

C - Take into account when you log decision student success in Prerequisite if any.

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E - Student selects one branch to research and essay from two specialized branches.

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- C - Not allows the student who has a cumulative rate (1) to register in more than 12 credit hours in a semester.

▪ **Additions, deletions, withdraw and modify the path:**

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- B - Student may withdraw from the study any decision until the end of the seventh week of the start of registration for the semester with the approval of the academic advisor. The record of this decision in the student's academic record estimate "withdrawn" on the condition that the student does not have absenteeism overruns before the withdrawal. And cases before the forced withdrawal over this period the Commission Education and Student Affairs for consideration and approval of the Faculty Council on the withdrawal shall be without prejudice boarding school student.
- C - A student may alter the course of the specialization subject to the completion of the requirements of specialization desirable and not counting credit hours, which the student obtained by not located in the area of the requirements of the new specialization and after the approval of the academic advisor and the Committee on Education and Student Affairs and the College Board on this amendment.

▪ **Stop registration or drop out**

- A - Stop registration: the student can apply to stop his registration for one semester and a maximum of four separate classes are connected and for compelling reasons approved by the College Board.
- B - Dropout: the student can re-record if he dropouts for maximum two semesters and for compelling reasons approved by the College Board.

▪ **Attendance:**

- A - The instructor shall register the presence of students at the start of each lecture theory or process in a practical period Prepared for by the Student Affairs and delivers this record at the end of the semester to manage the affairs of Students.
- B - When the student exceeds the absence of 10% of the scheduled hour's instructor shall notify the Department of Affairs Students to guide the first warning to the student.
- C - When the student exceeds the proportion of the absence of 20% of the scheduled hour's instructor shall notify the Department Student Affairs to direct second and final warning to the student.
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Final Oral Exam	10 %	Measure knowledge, understanding and intellectual skills.
Final Term Examination	80%	Measure knowledge, understanding and intellectual skills.

b. courses practical separate

Method of Assessment	Weighting	learning outcomes assessed
Midterm exam & Semester work	20%	Measure knowledge, understanding, intellectual, professional, practical and general skills.
Final Oral Exam	20 %	Measure knowledge, understanding and intellectual skills.
Final practical Examination	60%	Measure knowledge, understanding, intellectual, professional and practical skills.

c. courses which include part "practical"

Method of Assessment	Weighting	learning outcomes assessed
Midterm exam & Semester work	16%	Measure knowledge, understanding, intellectual and general skills.
Final Oral Exam	12 %	Measure knowledge, understanding and intellectual skills.



Final practical Examination	24%	Measure knowledge, understanding, intellectual, professional and practical skills
Final Term Examination	48%	Measure knowledge, understanding and intellectual skills.

50% of the total score lecture semester work for final oral exam.

d. Course search and essay

- 50% of the total score for the course of the various activities carried out by the student during his study of the course.
- 50% of the total scores for the course of the discussion session.

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	C+	2.3	65% — <70%
Pass	C	2	60% — <65%
Fail	F	0	<60%
Absent	F-	0	—

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- a. Direct teaching strategy.
- b. Cooperative learning strategy.
- c. Brainstorming strategy.
- d. Problem-solving strategy.
- e. Effective discussion strategy.
- f. Independent Study strategy.

11. Methods of program evaluation: (Appendix 6)

Samples	Tool
1- Senior Students	Questionnaire



2- Alumni	Questionnaire
3- External Evaluators	Reports
4- Stakeholders	Questionnaire, workshops, seminars, conferences
5- Social parties	Non

Head of Botany Department

Prof. Mahmoud M. Amer

Program Coordinators:

Dr. Mohamed O. Abdel-Monem

Dr. Mohamed A. Nasr-Eldin