



Benha University
Faculty of Science
Department of Chemistry



Non-organic Chemistry M.Sc. Program Specification



Non-organic Chemistry M. Sc. Program Specification

A. Basic Information

Program Title:	Non-organic Chemistry M. Sc. Program Specification
Program Type:	Graduate (M. Sc.)
Department:	Chemistry Departement
Coordinator:	Dr. Mostafa Y. Nassar
Assistant Co-ordinator:	Prof. Dr. Wagdy I. El-Dougdoug

The most recent date of the program specification approval: 9/12/2015 (Faculty council; meeting number, 390)

B. Professional Information

1. Program Aims

Non-organic Chemistry M. Sc. Program is an academic program produced by Chemistry Department. It is goal-oriented, focused, research experience, community service, and development of important personal characteristics of the postgraduated students. The following are the aimed graduate attributes:

- Acquire the required fundamental and advanced knowledge to help to identify one or more problems in non-organic chemistry and solving them.
- Awareness of graduate role in community development and keeping the environment safe.
- Recognize extensive knowledge related to different branches of non-organic chemistry.
- Develop knowledge and skills necessary for independent learning and participate effectively in research activities in non-organic chemistry.
- Participate effectively as a member or leader in teamwork, able to make right scientific decision and behave in mannar reflecting integrity and credibility.
- Exploit the modern technology in searching and serving the professional practice.

2. Intended Learning Outcomes (ILO's)

a. Knowledge and Understanding



The postgraduates of the **Non-organic Chemistry** M. Sc. Program should be able to demonstrate the knowledge and understanding of:

- a1 State basics and theories of different branches of non-organic chemistry.
- a2 Define the ethical, basic, and quality principles of non-organic chemistry research.
- a3 Describe new techniques and instruments in non-organic chemistry.
- a4 Explain the current topics in organic chemical research their influence on the environment.
- a5 Recognize the scientific development in non-organic chemistry including chemical reactions and applications.

b. Intellectual Skills

The postgraduates of the **Non-organic Chemistry** M. Sc. Program should be able to:

- b1 Design research plan for development in non-organic chemistry.
- b2 Organize the collected data in the field of non-organic chemistry.
- b3 Interpret the organized and collected data.
- b4 Evaluate the collected data and the risks in experimentally non-organic chemistry research.
- b5 Propose chemical structures and their mechanisms based on interpretation of the collected results using different tools and instruments.
- b6 Formulate the scientific research results.
- b7 Report scientific decision on the problems and their solutions.

c. Professional and Practical Skills

On successful completion of the Postgraduates of the **Non-organic Chemistry** M. Sc. program should be able to:

- c1 Apply basic and professional skills in preparation of different non-organic compounds.
- c2 Collect scientific data using various scientific tools.
- c3 Investigate scientifically the collected data based on the gained knowledge.
- c4 Examine applications of some non-organic compounds in different fields.
- c5 Prepare scientific reports or scientific research papers based on the collected data.
- c6 Plan to develop the professional practice and the performance of the co-workers during laboratory works.

d. General Skills



The graduates of the Postgraduate of the **Non-organic Chemistry M. Sc.** Program should be able to:

- d1 Use computers and internet for communication, data handling and word processing.
- d2 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.
- d3 Use different sources for information and knowledge.
- d4 Manage tasks, time, and resources, effectively.
- d5 Search for information and engage in life-long self learning discipline.
- d6 Help raising public awareness of the benefits of conserving intellectual property rights and scientific patents on the individuals and communities.
- d7 Lead scientific meeting and manage time.

3- Academic standards of the program

The program outcomes are derived from the **Academic Reference Standards (ARS)** for postgraduate program published by the National Authority of Quality Assurance and Accreditation of Education in (2009).

4- Reference indices (Benchmarks)

The program outcomes are derived from the **Academic Reference Standards (ARS)** for postgraduate program published by the National Authority of Quality Assurance and Accreditation of Education in (2009).

5- Curriculum structure and contents of program

a- Program duration: 2-4 years.

b- Program structure:

Program structure	Credit hours
Compulsory courses	15
Optional courses	9
Research and preparing the M.Sc. thesis	24
Total	48

d- Program Courses:



Code No.	Course Title	No. of hours		
		Lectures	Practical	Credit hours
The graduate studies total (24 hours)				
Compulsory courses (15 hours)				
601 Ch	Advanced analytical chemistry	2	-	2
602 Ch	Advanced inorganic chemistry	3	-	3
603 Ch	Applied quantum mechanics and thermo-dynamics	2	-	2
604 Ch	Electrochemistry and kinetics	2	-	2
605 Ch	Advanced physical organic chemistry	3	-	3
606 Ch	Advanced organic chemistry	3	-	3
Optional courses (9 hours)				
607 Ch	Inorganic polymer chemistry and inorganic compounds	2	-	2
608 Ch	Advanced radiochemistry	2	-	2
609 Ch	Applied coordination chemistry	2	-	2
610 Ch	Metal and alloy corrosion chemistry	2	-	2
611 Ch	Kinetic chemistry	2	-	2
612 Ch	Homogenous and hetrogenous catalysis	2	-	2
613 Ch	Computational methods in quantum chemistry	2	-	2
614 Ch	Scientific writing	1	-	1
615 Ch	Selected courses in analytical chemistry (1)	2	-	2
616 Ch	Solid state chemistry	2	-	2
617 Ch	Nuclear and radiochemistry	2	-	2
618 Ch	Molecular spectroscopy and quantum theory	2	-	2
619 Ch	Chemical applications of group theory	2	-	2
620 Ch	Advanced electrochemistry	2	-	2
621 Ch	Applied chemistry	2	-	2
24 credit hours for research and preparing the M. Sc. thesis				
699 Ch	Master thesis	-	-	24

Courses specification:



See course specification forms

7- Program admission requirements

- The students registered in this program must have B.Sc. in chemistry or in double chemistry branches such as chemistry-geology and so on with a good grade. Students who have passed grade in B.Sc. should take a diploma in chemistry with a very good grade.
- Students must enroll in M.Sc. program in five years from their B.Sc. year. Otherwise they must take a diploma in chemistry then register in M.Sc. program.
- Get 3 computer courses.
- One establishment **seminar** approved by Chemistry Department Council.
- The student must pass at least the local TOEFL exam with 400 score.

8- Regulations for progression and program completion:

- According to the law of Faculty of Benha Science, the regulations for progression and program completion, the graduate must pass:
 - * 24 cr (credit hours) compulsory and optional hours.
 - * 24 cr (credit hours) for preparing the M. Sc. thesis.
- Student is considered absent, if he/she misses the final written exam with no accepted excuse.
- Student must complete their experimental research works and consequently their theses.

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

- **Optional courses evaluation:**

	Method of Assessment	Percent
1-	Semester work	---
2-	Mid Term Exam	---
3-	Final Practical Exam	---
4-	Final Oral Exam	20%
5-	Final Term Examination	80%
	Total	100%

- **Master Thesis evaluation:**



- 5-1. The supervisors reports.
- 5-2. Individual Reports of the Judge Committee
(Three specialist professors including the senior supervisor).
- 5-3. The Public Discussion
- 5-4. The Common Report of the Judge Committee.
- 5-5. Department, Faculty and University Boards.

• Assessment Recommendations:

- The Judge Committee has to recommend one of the following:
- Accepting the thesis as it is.
 - Accept the thesis and recommends awarding after correction performing.
 - Delaying awarding for maximum three months to perform corrections.
 - Re-displaying the thesis to the judge committee within limited period.
 - Rejecting the thesis at all.

10- Methods of program evaluation:

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

The person responsible for the program: Prof. Dr. Alaa S. Amin

Date: