Benha University
Faculty of Science
Department of Chemistry

Non-organic Chemistry
Ph.D Program
Specification

Non-organic Chemistry Ph.D. Program Specification

A. Basic Information

Program Title:	**Non-organic Chemistry** Ph.D. Program Specification
Program Type:	Graduate (Ph D)
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-oganic chemistry Ph.D. 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:

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

2. Intended Learning Outcomes (ILO's)

a. Knowledge and Understanding

The postgraduates of the **Non-oganic Chemistry** Ph.D. Program should be able to:

a1. Recognize fundamentals and theories of different branches of non-organic chemistry.
a2. Outline the ethical, basic, and quality principles of non-organic chemistry research.
a3. Explain new techniques and instruments in non-organic chemistry.
a4. Determine the current issues of non-organic chemical research influence the professional and the environment.
a5. State different types of chemical reactions and their applications.

b. Intellectual Skills

The postgraduates of the **Non-oganic Chemistry** Ph.D. Program should be able to:

b1. Analyze the obtained information in the field of non-organic chemistry.
b2. Evaluate the collected data the risks in experimentally non-organic chemistry research.
b3. Propose the chemical structures based on interpretation of the collected results using different spectroscopic and analytical tools.
b4. Formulate the scientific research results.
b5. Report different concepts in various braches of non-organic chemistry.
b6. Design research plan for progress in non-organic chemistry.
b7 Report scientific decision on the problems and their solutions.

c. Professional and Practical Skills

On successful completion of the Postgraduates of the **Non-oganic Chemistry** Ph.D. program should be able to:

c1 Apply basic and professional skills in preparation of different inorganic organic compounds.
c2 Collect scientific data using various scientific tools.
c3 Judge scientifically the collected data based on the gained knowledge.
c4 Compare applications of some organic and inorganic 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-oganic Chemistry** Ph.D. 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 mange 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- Curricullum structure and contents of program

a- Program duration: 3-5 years.

b- Program structure:

- 12 optional credit hours.
- 48 credit hours for research and preparing the PhD thesis.

d- Program Courses:

Optional courses:

i. Courses of Inorganic Chemistry

Code No.	Course Title	No. of hours		
		Lectures	Practical	Credit hours
The graduate studies (12 hours)				
701 CH	Advanced Coordination Chemistry	2	-	2
702 CH	Advanced Metallorganic Chemistry	2	-	2
703 CH	Advanced Techniques for determination of In-organic Complexes	2	-	2
704CH	Chemistry of selve Coogulation of molecules	2	-	2
705CH	Advanced studies in atomic and molecular the-ories	2	-	2
706 CH	Thermodynamicas of Solutions	2	-	2
707 CH	Selective Subjects In Physical Chemistry	2	-	2
708 CH	Computional thermodynamics	2	-	2
709 CH	Selective Subjects In Applied Quantum Chemistry	2	-	2
710 CH	Advanced Corrosion Chemistry	2	-	2
711CH	Selective Subjects In Analytical Chemistry (2)	2	-	2
721 CH	Nano-technology	2	-	2
48 credit hours for research and preparing the PhD thesis				
721 CH	Doctoral thesis	-	-	48

See course specification forms

7- Program admission requirements

- Admission is achieved on the basis of completion of the M.Sc. degree or any equivalent Arabic or international certificate.

- Passing TOFEL by level that determined by the University Council**,** as well as the conditions is met additional college and university deems necessary to register for Ph.D.

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:
  * 12 cr (credit hours) optional hours.
  * 48 cr (credit hours) for preparing the Ph.D. thesis.
- Student is considered absent, if he/she misses the final written exam with no accepted excuse.
- Get 3 computer courses.
- Establishment 2 Seminars approved by Department Council.

9- Methods and rules of evaluation of students in rolled 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%

- **Doctorate Thesis evaluation**:

5-1. The senior supervisor 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:

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

2. Intended Learning Outcomes (ILO's)

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a3 Explain new techniques and instruments in organic chemistry.
a4 Determine the current issues of organic chemical research influence the professional and the environment.
a5 State different types of chemical reactions; mechanisms, and applications

b. Intellectual Skills

The postgraduates of the **Organic Chemistry** Ph.D. Program should be able to:

b1 Analyze the obtained information in the field of organic chemistry.
b2 Evaluate the collected data the risks in experimentally organic chemistry research.
b3 Propose organic chemical structures and their mechanisms based on interpretation of the collected results using different tools and instruments.
b4 Formulate the scientific research results.
b5 Report different concepts in various braches of organic chemistry.
b6 Design research plan for development in organic chemistry.
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Optional courses:

i. Courses of Organic Chemistry

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		Lectures	Practical	Credit hours
The graduate studies (12 hours)				
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713 CH	Molecular Photochemistry	2	-	2
714 CH	Solids Pillars in Organic Synthesis	2	-	2
715CH	Active media Theories and Catalysis in Organ-ic Reactions	2	-	2
716CH	Chemistry and Applications of Polymers and Surfactants	2	-	2
717 CH	Advanced Spectroscopic Methods for Identification of Mechanisms	2	-	2
718 CH	Selective Subjects In Organic Chemistry	2	-	2
719 CH	Advanced Organic Synthesis	2	-	2
720 CH	Chemistry and Applications of Natural Products	2	-	2
48 credit hours for research and preparing the PhD thesis				
799 CH	Doctoral thesis	-	-	48

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

Date: