

Petra University		جامعة البترا
Faculty of arts and sciences		كلية الآداب والعلوم
Department of Chemistry		قسم الكيمياء

Course Syllabus

Year: 2019/2020

Semester: Second

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours Lectures / ECTS
101346	Manufacturing and analysis of chemical products	101241	-	1/3 ECTS: European Credit Transfer System

Instructor Name	e-mail	Office No.	Office ext.	Office Hours
DR. ABDEL MNIM ALTWEIQ	aaltweiq@uop.edu.jo	7214	7214	Sun., Tues., Thurs.: 10 ⁰⁰ -11 ⁰⁰ and 13 ⁰⁰ – 14 ⁰⁰ (Sun.) Mon., Wed.: 8 ⁰⁰ - 09 ⁰⁰

Course Description	The course covers the manufacturing process of many chemical products like cement, food, fertilizers, pesticides, paints, detergent and pharmaceutical products from their raw material. This course emphasizes the chemical conversion, which may be defined as a chemical reaction applied to industry processing. This course also deals with the ideal analysis methods of raw materials, intermediate and final products of the interested chemical products.
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Course Objectives

- To develop in students the ability to apply their chemical knowledge and skills to the solution of theoretical and practical problems in chemical industry.
- To provide students with a knowledge and skills base from which they can proceed to further studies in specialized areas of analytical and industrial chemistry or multi-disciplinary areas involving chemistry.
- To instill in students a sense of enthusiasm for analytical, instrumental and industrial chemistry, an appreciation of its application in different contexts and to involve them in an intellectually stimulating and satisfying experience of learning and studying.

Course Intended Learning Outcomes (ILOs) and their Alignment with Program ILOs:

Upon successful completion of this course, students are expected to achieve the following learning outcomes:

Course ILOs	Program ILOs	Teaching and Learning Method	Assessment Method
Knowledge (K)			
1. Explain the manufacturing process of the interested chemical products that include the following chemical products; cement, food, fertilizers, pesticides, paint, detergent and pharmaceutical products.	K (1)	Lectures and discussion	First, second and final exams
2. Describe the different classical and instrumental analysis methods for raw materials, intermediates and final products of the interested chemical products.	K (3)		
Intellectual Skills (I)			
1. Illustrate the nature and behavior of chemical substances that used in chemical manufacturing of the interested chemical products mentioned in the course contents and identify their various functions.	I (1)	Lectures and discussion	First, second and final exams
Transferable Skills (T)			
1. achieved through goals mentioned in ILOs	T (1)		

Alignment of Teaching and Learning Methods, Assessment and Course ILOs:

Teaching method	Contact Hours	Assessed through	ILOs numbers
Lectures and Discussions	2	Exams	K1, K3, I1

Learning References:

1- References:
Shreve's chemical process industries, 5 th edition, by George T. Austin.
Principles of Instrumental analysis, 6 th Edition, D. A, Skoog, J. Holler & S. R. Crouch, Thomas Brook/Cole, 2007
2- Other Resources: Lecture room with data show facilities, Course notes, Internet

Assessment Methods:

Assessment method	Grade
First exam	25
Second exam	25
Final exam	40
Participation	10
Total	100

Course Schedule:

Week	Topics	Topic Details	Reference
1	Chemical processing	Introduction, terminology, chemical and physical processes.	Ref. 1, 2
2, 3	Construction materials	Lime, cement, manufacturind and methods of analysis	Ref. 1, 2
4, 5	Food industry	Background, additive substances, manufacturing and methods of analysis	Ref. 1, 2
6	Fertilizers	Types, raw materials, different fertilizers components, manufacturing and methods	Ref. 1, 2

7	Pesticidies	Types, raw materials, manufacturing of pesticides and methods of analysis	Ref. 1, 2
8	Paints	Types, raw materials, manufacturing of pesticides and methods of analysis	Ref. 1, 2
9, 10	Soap and detergent	Raw materials, manufacturing of soap, different detergent components, manufacturing of detergent and methods of analysis	Ref. 1, 2
11, 12	Pharmaceutical products	Types, row materials, manufacturing and methods of analysis	Ref. 1, 2
13	Good manufacturing practice (GMP)	Definition and guidelines	Ref. 1, 2
14	Scientific trips		

Course Policies

- Attendance Policy: University regulations apply to attendance.
- Academic Honesty: Academic dishonesty is an unacceptable mode of conduct, and will not be tolerated in any form at University of Petra. All persons involved in academic dishonesty and plagiarism in any form will be disciplined in accordance with University rules and regulations.

Approved by	Name	Date	Signature
Head of Department	Prof. Rami Abdel-Rahem	20. 02.2020	
Faculty Dean	Prof. Mohamad Alanain	24.02.2020	

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