University of Petra		جامعة البترا - خمسة وعشرون عاما University of Petra Anniversary
Faculty of Arts and Sciences		كلية الآداب والعلوم
Department of Chemistry		قسم الكيمياء

Course Syllabus

Year : 2018/2019
Semester: 20181

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours Lectures / Lab.	ECTS
101458/1	Organic Industries (2)	101212	-	3/-	5

Instructor Name	E-mail	Office No.	Office Ext.	Office Hours
Dr. Nabil Eldurini	nabild@uop.edu.jo	7111	7111	Sun, Thu 10.00 – 12.00 Tue 13.00-14.00 Mon, 11.00 – 12.00

Coordinator's Name: *(if applicable)*	-

Course Description	Polymer Industries; Sellected polymers Industries including: rubber, plastics, resins, synthetic fibers, sponge and adhesives.

Course Objectives

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

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 and Understanding (K): By the end of the course students should be able to:			
1. Identify major principles and concepts in polymers industry.	K1	Lectures using data show and Models	Exams
2 Name and Categorize different types of polymers.	K2	Lectures using data show	Exams
Intellectual Skills (I): By the end of the course students should be able to:			
1. Correlate different structural features of monomers and polymers with their specific functions.	I1	Lectures using data show	Exams
2. Apply thermodynamics and kinetic conditions and data in polymers industry.	I2	Lectures using data show	Exams
3. Use different chemical processes in polymers industry.	I2	Lectures using data show	Exams

Course Schedule:

Week	Topics	Course ILO number	Reference
1	Introduction: Preview of Polymers.	K2	Chapter 1
2,3	Classification of polymers: Classification by origin; by chain structure; by thermal behavior; by monomer composition; by polymerization mechanism; by chain configuration; and by application.	K1, K2	Chapter 2

4	**Polymerizability: Functionality, reactivity, and purity monomers; Thermodynamics of polymerization.**	**K3, P2**	**Chapter 3**
5, 6	**Reactivity of polymer molecules: Flory`s principle of equal reactivity; Influence of viscosity on reactivity; The functional group approach.**	**I1, I2, P2**	**Chapter 4**
6, 7, 8	**Condensation polymerization: Average degree of polymerization; Kinetics of Condensation polymerization; Limits of degree of polymerization; Molar mass distribution in linear condensation polymers; Important condensation polymers.**	**K3, I1, I23, P1,P2, T1**	**Chapter 5**
9, 10	**Addition polymerization: Types of addition polymerization and kinetics.**	**K3, I1, I23, P1,P2, T1**	**Chapter 6**
11,12	**The copolymer equation and types of copolymers.**	**P1, P3, T1**	**Chapter 7**
13, 14	**Inorganic polymers: Classification; Some important inorganic` polymerization reactions.**	**K1, K3, I1, I2, P1,P2, T1**	**Chapter 9**

Assessment Methods:

Assessment method	Grade	Comments
First Exam	**25**	**(Wed) 21/11/2018**
Second Exam	**25**	**(Wed) 26/12/20118**
Term Paper	**10**	**Last weak**
Final Exam	**40**	**Set by Registrar**
Total	**100**	

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

Teaching method	Contact Hours	Assessed through	ILOs numbers
Lectures	**42**	**Exams and Quizez**	**All ILOs**

Learning References:

1- Polymer Chemistry Sheet, by Dr. Nabil Eldurini, Bookshop.
2- Power Point Slides Supplied by the Instructor.
3- Principles of Polymerization, Fourth Edition, by George Odian.

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	**Dr. Abdelmnim Al Tweiq**		
Faculty Dean	**Prof. Rami Abdulrahim**		