**CHEM 438 Syllabus**

| Course Code | Course Name | Credits | Prerequisite(S) | Classification |
|---|---|---|---|---|
| **CHEM 438** | Organic chemistry of polymers | 2 | CHEM 334 | **Elective** Course |

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|---|---|
| **Course Description** | This course is aiming to give a background on the industrial organic polymers, their structure and the different techniques used for preparation and characterization. Also, to give knowledge on some application directions in which the polymer play an important role. |
| **Class Scheduling** | Classes are held 2 times/week each for 50 minutes. |
| **Textbook** | Essentials of Polymer Science and Engineering (Paul C Painter, Michael M Coleman) ,2009, DEStech PUBLICATIONS,Inc.<br>Polymes chemistry and physics of modern materials,J.M.G Cowie,Valeria Arrighi,2007, CRC Press. |
| **Course Coordinator** | Dr. Nazeeha Alkayal / Dr. Suliman Alfifi |

**Relationship to SOs**

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| X | X | | | | X |

**CLOs**

**By the end of this course student will be able to:**

**CLO1.**Describe the scientific principles governing polymer synthesis and characterization (SO2)

**CLO2.** Identify polymers according to the structure of it. (SO1)

**CLO3.** Draw the polymer isomers and mechanism of different polymerization methods. (SO2) CLO4. Apply methodologies to conduct polymer synthesis, analyses, or other chemical investigations (SO6)

**CLO5.** Calculate the average molecular weight of polymer and polydispersity index. (SO2)

**CLO6.** Work productively and collaboratively as a team member (SO6)

**Contents**

| List of Topics | No. of Weeks |
|---|---|
| General introduction and physical properties of polymers | 2 |
| Addition polymerization | 4 |
| Copolymers and self-assembly | 2 |
| Structure and properties of polymers, crosslinking | 1 |
| Chemistry and Processing of Plastics, rubber, fibers | 4 |
| Molecular weight and its determination | 1 |
| Student Presentation | 1 |