**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |

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| College of Engineering  University of Baghdad | 1. Teaching Institution |
| Chemical Engineering Department(CHED) | 2. University Department/Centre |
| PETROCHEMICAL INDUSTRIES/430 CHPI | 3. Course title/code |
| Chemical Engineering Department(CHED) | 4. Programme(s) to which it contributes |
| Annual System . There is only one mode of delivery , which is a "Day Program". The students are full time students , and on campus . They attend full day program in face-to-face mode . The academic semester is composed of 15-week regular subjects. Each graduating student has to successfully complete 160 credits . Each subject credit is one 50-minute lecture a week or 3-hour lab a week . There is no on-line subject which may be used as supplementary material for the class room instructions. | 5. Modes of Attendance offered |
| 2nd Semesters/Academic Year 2017-2018 | 6. Semester/Year |
| 60 hrs./4hrs. per week | 7. Number of hours tuition (total) |
| October-10/2017 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| 1.Introduction to primary raw materials for petrochemicals. | |
| 2.Study of hydrocarbon intermediates. | |
| 3.Study of crude oil processing and production of hydrocarbon intermediates. | |
| 4.Study of chemicals based on methane, ethane,ethylene,propylene,benzene,toluene and xylene.  5.Introduction to polymerization. | |

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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding. By the end of the course, the student should be able to :   A1.Understand the importance and usage of petrochemicals.  A2.Understand the processing methods.  A3.Ability of optimization . |
| B. Subject-specific skills  B1. Know the importance of petrochemical industries in chemical engineering .  B2.Recognize the analogy between various processing methods.  B3.Know the optimum processing method to develop it.  B4.Know the economic importance of petrochemical industries in Iraq.  B5. Find alternatives of primary raw materials.  B6 .Know the classification of petrochemicals according to their primary raw materials.  B7. Know the classification of petrochemicals according to their intermediate raw materials.  B8.Know the origin of the different petrochemicals and their economic availability.  B9.Choose the optimum process to produce certain material.  B10.Identify various types of petrochemicals according to their physical and chemical properties.  B11.Know the difference in petrochemicals properties results from different processing routes.  B12Assign problems in Iraqi petrochemical industries.  B13.Use professional knowledge to solve problems.  B14.Develop polymerization industry in Iraq. |
| Teaching and Learning Methods |
| 1.Lectures  2.Discussion  3.Poster session  4.Tests and Exams  5.In-class questions and discussions  6.Connection between theory and application |
| Assessment methods |
| 1.Examinations,Tests and Quizzes.  2.Questions for discussion.  3.Student engagement during lectures. |

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| 11. Course Structure | | | | | | |
| Assessment Method (Article 12) | Teaching  Method (Article 11) | Unit/Module or Topic Title | ILOs (Article l0) | Hours | Week | |
| 1-3 | 1-6 | Primary Raw Materials | A1, B1,B5,B6, B7 | 4 theo. | 1 | |
| 1-3 | 1-6 | Intermediates | A1, B1,B5,B6, B7 | 4 theo. | 2 | |
| 1-3 | 1-6 | Processing Methods | A2,A3 ,B2,B3,B9,B11 | 4 theo. | 3 | |
| 1-3 | 1-6 | Processing Methods | A2,A3 ,B2,B3,B9,B11 | 4 theo. | 4 | |
| 1-3 | 1-6 | Chemicals Based on Methane | B6,B7,B9, B10,B11 | 4 theo. | 5 | |
| 1-3 | 1-6 | Chemicals Based on Ethane | B6,B7,B9, B10,B11 | 4 theo. | 6 | |
| 1-3 | 1-6 | Chemicals Based on Ethylene | B6,B7,B9, B10,B11 | 4 theo. | 7 | |
| 1-3 | 1-6 | Chemicals Based on Ethylene | B6,B7,B9, B10,B11 | 4 theo. | 8 | |
| 1-3 | 1-6 | Chemicals Based on Propylene | B6,B7,B9, B10,B11 | 4 theo. | 9 | |
| 1-3 | 1-6 | Chemicals Based on Butylene | B6,B7,B9, B10,B11 | 4 theo. | 10 | |
| 1-3 | 1-6 | Chemicals Based on Benzene | B6,B7,B9, B10,B11 | 4 theo. | 11 | |
| 1-3 | 1-6 | Chemicals Based on Toluene | B6,B7,B9, B10,B11 | 4 theo. | 12 | |
| 1-3 | 1-6 | Chemicals Based on Xylene | B6,B7,B9, B10,B11 | 4 theo. | 13 | |
| 1-3 | 1-6 | Polymerization | B4,B8,B12,B13,B14 | 4 theo. | 14 | |
| 1-3 | 1-6 | Synthetic Fibers | B4,B8,B12,B13,B14 | 4 theo. | 15 | |

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| 12. Infrastructure | |
| Text Books:  1. 1.Chemistry of Petrochemical Processes, S. Matar and L .F. Hatch , Second Edition, Gulf Publishing Company,USA,2000.  References:  2.Petrochemical Overview, NPTEL - Chemical - Chemical Technology II.Others:  .Notebook prepared by the instructor of the course. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| 1.Available websites related to the subject . | Special requirements (include for example workshops, periodicals, IT software, websites) |
| 1.Field and scientific visits.  2.Extra lectures by foreign guest lecturers. | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | | |
| 430CHPI | | Pre-requisites |
| - | | Minimum number of students |
| 60 | | Maximum number of students |
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| **Dr. Raghad Fareed Qasim**  Assistant Professor  Chemical Engineering Department  College of Engineering  University of Baghdad | 14.Course Instructor | |