**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 | 2. University Department/Centre |
| Chemical industries | 3. Course title/code |
| Chemical Engineering Program | 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 year is composed of 30-week regular subjects. | 5. Modes of Attendance offered |
| 1st & 2nd / Academic Year 2014 – 2015 | 6. Semester/Year |
| 60 hrs. /4 hrs. per week | 7. Number of hours tuition (total) |
| 20-2-2015 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| The course aims considers the chemical processing of raw materials useful product these products are used both as consumer goods and as intermediates for further chemical and physical modification to yield consumer products about one-quarter of the total chemical output is utilized in the manufacture of other chemicals so the chemical industry is unique in being it's single best customer  Chemical engineers chemists , entrepreneurs managers and business people engaged in chemical manufacture will find this overview of the process industries helpful in understanding the current state of the art chemical engineering and industry chemistry must both be critically concerned with profit for without profit a business cannot operate rapid changes in methods characterize the chemical business which currently is responding to large changes in energy costs however whenever the cost of chemical entity increases by as little as 10 percent in many cases it risks replacement as much as if it were a new substance | |

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| 10· Learning Outcomes, Teaching ,Learning and Assessment Methode |
| 1. Knowledge and Understanding   A1. Knowledge within the industry raw materials  A2. know methods for preparation of materials for each industry  A3. knowledge of chemical equations and cofactors  A4. knowledge of the industrial process scheme  A5. knowledge of the devices used during the industrial process  A6 . knowledge of the industrial process and the economic value product |
| B. Subject-specific skills  B1. identify and private industries in the industry within the country  B2- identify the cost of producing materials and consumables |
| C. Thinking Skills  C1. Developing critical and creative thinking skills related to reaction engineering.  C2. Using the modern techniques |
| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. Communitiy effectivity.  D2. Work individually and team members in international and multidicplinary teams.  D3. Understanding impact of engineering solutions in an environmental and social context. |
| Teaching and Learning Methods |
| 1. Lectures. 2. Homework and Assignments. 3. Tests and Exams. 4. In-Class Questions and Discussions. 5. Connection between Theory and Application. 6. Field Trips. 7. Seminars. |
| Assessment methods |
| 1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| 1 – 4 of article (10) | 1-9 of  article (10) | Soap and detergent | A1 | 4 | 1 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Sulfuric acid | B1 | 4 | 2 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Caustic Soda | A2,B1 | 4 | 3 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Idustrial Salts | A2,B1 | 4 | 4 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Fertilizer | A2,B1 | 4 | 5 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Fertilizer | A2,A3,B1 | 4 | 6 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Ammonia | A2,A3,B1 | 4 | 7 |
| 1 – 4 of article (10) | 1-9 of  article (10) | urea | A2,A3,B1 | 4 | 8 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Paper and Cellulose | A2,A3,A4,B1 | 4 | 9 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Ceramic Industry | A2,A3,A4,B1 | 4 | 10 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Cement Industry | A2,A3,A4,B1 | 4 | 11 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Glass Industry | B2 | 4 | 12 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Fat and Vegetable Oils | B2 | 4 | 13 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Sugar industry | A5 | 4 | 14 |
| 1 – 4 of article (10) | 1-9 of  article (10) | Sugar industry | A5 | 4 | 15 |

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| 12. Infrastructure | | |
| ***Textbook***  Shreves chemical process industries  ***References***  Survey of Industrial Chemistry Third Edition  ***Others***   1. Notebook prepared by the instructor of the course. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | |
| Available websites related to the subject | Special requirements (include for example workshops, periodicals, IT software, websites) | |
| Field and scientific visits | Community-based facilities  (include for example, guest  Lectures , internship , field studies) | |
| 13. Admissions | | |
|  | | Pre-requisites |
|  | | Minimum number of students |
| 60 | | Maximum number of students |

***Instructor:***

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