



Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب Section Concerning the Student

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|---|----------------------------------|--|
| 1. Course Code: | CHEMY451 | 1. رمز المقرر: |
| 2. Course Title | Industrial Chemistry | 2. اسم المقرر: |
| 3. College: | Science | 3. الكلية: |
| 4. Department: | Chemistry | 4. القسم: |
| 5. Academic Program: | Bachelor of Science in Chemistry | 5. البرنامج الأكاديمي: |
| 6. Course Credits: | 2-2-3 | 6. عدد الساعات المعتمدة: |
| 7. Course NQF Level: | 8 | 7. مستوى المقرر وفقاً للإطار الوطني للمؤهلات: |
| 8. Notional Hours: | 116 | 8. عدد الساعات الافتراضية: |
| 9. NQF Credits: | 12 | 9. عدد الساعات المعتمدة للمقرر وفقاً للإطار الوطني للمؤهلات: |
| 10. Prerequisite: | CHEMY321 and CHEMY341 | 10. المتطلب السابق للمقرر: |
| 11. Lectures Timing & Location: | | 11. وقت المحاضرة ومكانها: |
| 12. General Mode of Teaching and Learning | تقليدي Traditional | 12. النمط العام للتعليم والتعلم: |

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University of Bahrain – Quality Assurance & Accreditation Center - Academic Course Specification Form
May 2024

Changing any elements of the form is strictly prohibited.
يرجى عدم تغيير أي عنصر من عناصر الاستمارة

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| 13. Course Coordinator: | | 13. منسق المقرر: |
| 14. Course Instructor: | | 14. مدرّس المقرر: |
| 15. Office Hours and Location: | | 15. الساعات المكتبية ومكانها: |
| 16. Instructor's Email: | | 16. البريد الإلكتروني لمدرّس المقرر: |
| 17. Academic Year: | | 17. السنة الأكاديمية: |
| 18. Semester: | | 18. الفصل الدراسي: |
| 19. Textbook(s): | | 19. الكتب الدراسية للمقرر: |
| Fabrizio Cavani, Gabriele Centi, Siglinda Perathoner, Ferruccio Trifirò, "Sustainable Industrial Chemistry: Principles, Tools and Industrial Examples", 2020, (Wiley). | | |
| 20. References: | | 20. المراجع: |
| RP Schwarzenbach, PM Gschwend, DM Imboden, "Environmental Organic Chemistry". 2016, (wiley). Andrew Dessler, "The Chemistry and Physics of Stratospheric Ozone". 1 st edition, Elsevier, 2023. | | |
| 21. Other Learning Resources Used (e.g. e-learning, field visits, periodicals, software, etc.): | | 21. مصادر التعلّم الأخرى (مثال: التعلّم الإلكتروني، زيارات ميدانية، دوريات، برمجيات، إلخ....) |
| Learning through Microsoft Teams and Ultra Black Board | | |
| 22. Course Description (as published in the College Catalogue): | | 22. توصيف المقرر (حسب ما ورد في دليل الكلية): |
| Chemical manufacture processes; synthesis of adhesives, pigments, dyes, food additives, detergents, insecticides, pesticides, herbicides, organic fertilizers, polymers, and pharmaceutical products; petrochemical production processes (petroleum refinery and gasoline manufacture, petroleum cracking and reforming); manufacture of some inorganic chemicals: alloys, cement, glass, ceramics, inorganic fertilizers. Related practical work. | | |
| 23. Course Intended Learning Outcomes (3 to 5 CILOs): | | 23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية): |
| 1. Explain chemical manufacture processes. | | |
| 2. Use specialist skills to apply a foundational knowledge of chemical principles to real-world industrial processes. | | |
| 3. Critically analyze a specific industry and its chemical processes. | | |
| 4. Use special skills to communicate an informative and engaging presentation. | | |
| 5. Compose laboratory reports with useful conclusions supported by data and observations. | | |

| 24. Course Assessment Percentages (as per Regulations of Study and Examination at the University of Bahrain): | | 24. أساليب التقييم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين): | |
|---|--------------------|--|----------------------------------|
| Assessment التقييم | Type النوع | Percentage النسبة | Assessment Date تاريخ التقييم |
| Midterm 1 | Individual فردى | 20% | |
| Midterm 2 | Individual فردى | 20% | |
| Laboratory Reports | Individual فردى | 10% | |
| Practical Test | Individual فردى | 10% | |
| Final Examination | Individual | 40% | |
| Total | 100% | | |
| 25. Description of Topics Covered | | 25. وصف الموضوعات التي ينبغي تناولها: | |
| Topic Title (e.g. chapter/experiment title) الموضوع | | Description التفصيل | |
| Chapter (1) | | Coal; its origin and its ranking, Petroleum – origin, Classification and mining, Main Petrochemicals, Chemical conversions for manufacture of petrochemicals, Petrochemicals from Methanol, Ethylene, Propylene, Butylenes and BTX, Manufacture of Acetylene, Ethylene oxide, Acrylonitrile, Dimethyl terephthalate- | |
| Chapter (2) | | Introduction to oils and fats, Properties of oils and fats, Classification of oils, Animal and Vegetable Sources, Manufacture of vegetable oils, Animal fats and oils, Analysis of oils and fats, Hydrogenation of oils, Manufacture of soap, Introduction to detergents | |
| Chapter (3) | | Introduction to dyes and pigments, Color and constitution, Methods of dyeing, Classification of dyes, Pulp and Paper Industry. | |
| Chapter (4) | | Classification and the Chemistry of Pharmaceutical drugs, Manufacturing of Pharmaceutical products, Quality Control of Pharmaceuticals | |
| Chapter (5) | | Fertilizers Industry: Phosphorous containing fertilizers, Nitrogen containing fertilizers, Potassium Containing, Fertilizers Economic importance and environmental effects, Manufacturing processes and Applications | |
| Chapter (6) | | Inorganic Solids: Glass and ceramic products, clays, cements, manufacturing processes and applications | |
| Chapter (7) | | Metal and their compounds: Iron and its compounds, Aluminum and its compounds, | |

| | | | Chromium and its compounds, Manganese and its compounds, Economic Importance and their applications | |
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| 26. Weekly Schedule | | | 26. الجدول الأسبوعي | |
| Week الأسبوع | Date التاريخ | Topics Covered الموضوعات المتناولة | CILOs مخرجات التعلم للمقرر (CILOs) | Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم |
| 1 | | Chapter (1) | 1, 2, 4 | تقليدي Traditional |
| 2 | | Chapter (1) | 1, 2 | تقليدي Traditional |
| 3 | | Chapter (2) | 1, 2, 3 | تقليدي Traditional |
| 4 | | Chapter (2) | 2, 3, 4 | تقليدي Traditional |
| 5 | | Chapter (3) | 2, 3, 4 | تقليدي Traditional |
| 6 | | Chapter (3) | 2, 4 | تقليدي Traditional |
| 7 | | Chapter (3) | 2, 3, 4 | تقليدي Traditional |
| 8 | | Chapter (4) | 2, 3, 4 | تقليدي Traditional |
| 9 | | Chapter (4) | 2, 3, 4 | تقليدي Traditional |
| 10 | | Chapter (4) | 2, 3, 4 | تقليدي Traditional |
| 11 | | Chapter (5) | 2, 3, 4 | تقليدي Traditional |
| 12 | | Chapter (5) | 2, 3, 4 | تقليدي Traditional |
| 13 | | Chapter (6) | 2, 3, 4 | تقليدي Traditional |
| 14 | | Chapter (6) | 2, 3, 4 | تقليدي Traditional |
| 15 | | Chapter (7) | 2, 3, 4 | تقليدي Traditional |
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| 27. Academic Integrity Statement | | | 27. بيان النزاهة الأكاديمية | |
| Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies , and Students' Rights and Responsibilities Handbook . The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations. | | | يتعين على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقاً للوائح سلوك الطلاب والنزاهة الأكاديمية، سياسات مكافحة الانتحال ، ودليل حقوق الطلبة وواجباتهم ، المعمول بها في جامعة البحرين. يمكن لعواقب الغش والسرقة الأدبية والتعاون غير المصرح به وغيرها من أشكال عدم الأمانة الأكاديمية أن تكون خطيرة للغاية وسيتم التعامل معها وفقاً للسياسات واللوائح المذكورة آنفاً. | |
| 28. Attendance and Absence Regulations | | | 28. نظام الحضور والغياب | |
| Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33) of Regulations of Study and Examination at the University of Bahrain . | | | يجب على الطلبة الالتزام بالحضور المنتظم للمحاضرات الصفية والعملية، حسبما تحدده طبيعة المقرر الدراسي، ووفقاً للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين . | |