جامعة البحرين
University of Bahrain
مركز ضمان الجودة والاعتماد الأكاديمي
Quality Assurance and Accreditation Center

Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب
Section Concerning the Student

1. Course Code:	CHEMY 312	**1. رمز المقرر:**
2. Course Title	Practical Analytical Chemistry I	**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:	0-6-3	**6. عدد الساعات المعتمدة:**
7. Course NQF Level:	7	**7. مستوى المقرر وفقا للإطار الوطني للمؤهلات:**
8. Notional Hours:	133	**8. عدد الساعات الافتراضية:**
9. NQF Credits:	13	**9. عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:**
10. Prerequisite:	CHEMY311	**10. المتطلب السابق للمقرر:**
11. Lectures Timing & Location:		**11. وقت المحاضرة ومكانها:**
12. General Mode of Teaching and Learning	Traditional تقليدي	**12. النمط العام للتعليم والتعلّم:**

13. Course Coordinator:		**13. منسّق 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:**
Fundamentals of Analytical ChemistrySkoog, West and Holler, 9h edition, 2014 Principles of Instrumental Analysis Skoog, Holler and Nieman, 5th edition, 1997	
20. References:	**20. المراجع:**
References form the library (http://www.ac-knowledge.net/uobv3/): Chemistry Experiments for Instrumental MethodsSawyer, Heineman and Beebe.	
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....)**
22. Course Description (as published in the College Catalogue):	**22. توصيف المقرر (حسب ما ورد في دليل الكلية):**
Fundamental basis of instrumental analysis; detection limits; sampling methods; processing of experimental data; applications of chromatographic, electrochemical andspectroscopic methods in quantitative and qualitative analysis.	
23. Course Intended Learning Outcomes (3 to 5 CILOs):	**23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):**
1. Perform using advanced skills analyses of samples using modern analytical instruments	
2. Use advanced skills to interpret experimental results for different samples qualitatively and quantitatively.	
3. Justify the most appropriateanalytical method for common samples.	
4. Use various research resources to retrieve advanced knowledge in analytical methods.	
5. Communicate professional lab reports independently using research resources.	
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 I & II	Individual فردي	15%	
Project presentation	Individual فردي	10%	
Performance in Lab	Individual فردي	5%	
Lab Report	Individual فردي	30%	
Final Exam	Individual فردي	40%	
Total	**100%**		

25. Description of Topics Covered	**25. وصف الموضوعات التي ينبغي تناولها:**
Topic Title ***(e.g. chapter/experiment title)*** **الموضوع**	***Description*** **التفصيل**
Exp 1: Determination of Anthracene by Fluorescence measurement	Principles of Fluorescence measurement for fluorescent compound (Anthracene)
Exp 2: Determination of F ion concentration using ion- selective electrode	Principles of electroanalytical methods, types of electrodes. Ion selective electrode principles and application
Exp 3: Determination of Zinc in cereal products by Atomic Absorption spectrometry	Principles of atomic absorption spectroscopy, types of atomization, nebulization, hollow cathode lamp, detector. Limit of detections and comparison with other elemental spectroscopic instruments e.g., ICP
Exp 4: Qualitative and Quantitative Analysis by Infrared Spectroscopy	Application of UV/Vis measurements, analysis of two component mixture by absorbance measurement two characteristic maximum wavelength, main components of UV/Vis spectroscopic instrument
Exp 5: Analysis of two components mixture by UV/Vis	Precipitation methods, Volatilization methods, Gravimetric Calculations, Properties of precipitates and precipitating agents, Particle size and filterability of precipitates,
Exp 6: Determination of sodium and potassium by Flame Photometry	Principles of Flame photometry, flame emission spectrum, main components of the instruments, application of Flame photometry
Exp 7: Application of UV/Vis measurements, analysis of vitamin C, main components of UV/Vis spectroscopic instrument calculation	Application of UV/Vis measurements, analysis of vitamin C, main components of UV/Vis spectroscopic instrument calculation
Exp 8: The oxidation of secondary alcohol with Cr(VI) using UV/Vis spectrophotometer	Application of UV/Vis measurements, calculation of rate of reaction for oxidation of alcohols
Exp 9: Determination of some optically active compounds	The measurement of the optical rotation of sugar. Main components of instrumentation,

	relation between concentration and angle of rotation
Exp 10: Application of Gas Liquid Chromatography	Principles of separation methods, principle of chromatography, elution in column chromatograph, carrier gas system, sample injection system, column configurations and column ovens, chromatographic detectors, gas chromatographic columns and stationary phases, capillary columns, packed column, application of gas -liquid chromatography, quantitative analyses

26. Weekly Schedule | **26. الجدول الأسبوعي**

Week الأسبوع	Date التاريخ	Topics Covered الموضوعات المتناولة	CILOs مخرجات التعلُم للمقرر (CILOs)	Teaching/Assessment Mode and Method منهجية ونمط التدريس/التقييم
1		Introductory session	1,2,3,4,5	Traditional تقليدي
2		Determination of Anthracene by Fluorescence measurement	1,2,3,4,5	Traditional تقليدي
3		Determination of F ion concentration using ion-selective electrode	1,2,3,4,5	Traditional تقليدي
4		Determination of Zinc in cereal products by Atomic Absorption spectrometry	1,2,3,4,5	Traditional تقليدي
5		Qualitative and Quantitative Analysis by Infrared Spectroscopy	1,2,3,4,5	Traditional تقليدي
6		Analysis of two-component mixture by UV/Vis	1,2,3,4,5	Traditional تقليدي
7		Determination of sodium and potassium by FlamePhotometry	1,2,3,4,5	Traditional تقليدي
8		Vitamin C Determination by UV/VIS Spectrophotometer	1,2,3,4,5	Traditional تقليدي
9		The oxidation of secondaryalcohol with Cr(VI) using	1,2,3,4,5	Traditional تقليدي

10		Determination of some optically active compounds	1,2,3,4,5	Traditional تقليدي
11		Application of Gas liquid Chromatography	1,2,3,4,5	Traditional تقليدي
12		Case study or project (Literature and Experimental	1,2,3,4,5	Traditional تقليدي
13		(Experimental work)	1,2,3,4,5	Traditional تقليدي
14		Writing project's report	1,2,3,4,5	Traditional تقليدي
15		Presenting the project work	3,4	Traditional تقليدي
16				Choose an item.

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.	يتعيّن على الطلبة الالتزام بأعلى مستويات الصدق والأمانة والأخلاق الأكاديمية في سعيهم لتحقيق أهدافهم الأكاديمية وفقًا 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 وفقًا للسياسات واللوائح المذكورة آنفا.
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، ووفقا للمادة (33) من نظام الدراسة والامتحانات في جامعة البحرين.