



Faculty of Science

" إن جودة العلوم الأساسية هي  
الضمان للعلوم الأخرى "

The Quality of Basic Sciences is the Assurance for Other Sciences



وحدة ضمان  
الجودة

# قسم الكيمياء

## توصيف برنامج الكيمياء اللاعضوية

### لمرحلة

## ماجستير الكيمياء اللاعضوية

2017/2016

رئيس مجلس القسم العلمي أ.د. وفاء غنيم شوشة

منسق البرنامج. د. سحر كمال محمد



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جامعة حلوان

كلية العلوم

قسم الكيمياء

مرحلة الدراسات العليا

عام (٢٠١٦/٢٠١٧)

برنامج ماجستير الكيمياء اللاعضوية

رئيس مجلس القسم العلمى

أ.د. وفاء غنيم شوشة

منسق البرنامج

د. سحر كمال محمد



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وحدة ضمان الجودة

نموذج رقم (١٣)

جامعة: حلوان

كلية: العلوم

قسم: الكيمياء

توصيف برنامج دراسي

(عام 2017/2016)

أ - معلومات أساسية:

1- إسم البرنامج: Master degree in nonorganic Chemistry

2- طبيعة البرنامج: (أحادى) single major

القسم المسئول عن البرنامج: الكيمياء

تاريخ إقرار البرنامج: 11/6/2009 قرار وزارى رقم ١٢٣٤

تاريخ تعديل البرنامج: ٢٠١٠/٤/١٩ قرار وزارى رقم ٧٢٠

تاريخ توصيف البرنامج: مجلس القسم رقم ٤ بتاريخ ٢٠١٧/١٢/١٣

و مجلس الكلية رقم ٤٤٠ بتاريخ ٢٠١٧/١٢/١٨

ب- معلومات متخصصة:

1- الأهداف العامة للبرنامج :

1. Provide students with the knowledge and skills necessary to conduct physical, inorganic and analytical research in the related fields.
2. Enable students to update and develop their expertise through acquiring knowledge and professional skills in non organic chemistry fields.
3. Use modern technological and self-learning in the field of non organic chemistry.
4. Provide students with the skills, ethics, and methodologies to serve the needs of the environment and society.
5. Provide graduates with the ethics of scientific research and the basics of quality in the study of non organic chemistry.
6. Acquire student's skills of effective communication, integrity and credibility commitment.

2- مواصفات الخريج:

- 1- Apply the specialized knowledge gained in the professional practice.
- 2- Identify problems and propose professional solutions to it.
- 3- Master the professional skills and appropriate use of technology in professional practice.
- 4- Communicate and lead teams to work through the professional systematic work .
- 5- Making decisions in light of available information .
- 6- Employment of available resources efficiently .
- 7- Perceive his role in the developing society and preserve the environment.
- 8- Behave in a manner reflecting the commitment to integrity and credibility and the rules of the profession and accept accountability.
- 9- To realize the need to develop himself.



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٣- المخرجات التعليمية المستهدفة من البرنامج:  
A. المعرفة والفهم:

**By the end of the program the graduate is expected to:**

- a1. List the application of modern methods of instrumental analysis.
- a2. Find the updates in instruments and instrumental techniques that are of contemporary importance in the chemical sciences
- a3. Outline the latest findings in fields of non organic chemistry.
- a4. Relate the advanced principles of the subject matter to the literature of physical chemical analysis methods.
- a5. illustrate the strategies to manage problems in new or unfamiliar contexts.
- a6. Outline the experimental techniques suitable for definite research plan.

B. القدرات الذهنية:

**By the end of the program the graduate is expected to:**

- b1. Construct the suitable search plan to solve industrial related problems.
- b2. Utilize theories to overcome complex problems of a familiar and unfamiliar nature.
- b3. Assume hypothesis through statistical interpretation of experimental data.
- b4. Analyze search results using theories and statistical tests
- b5. Select the suitable computer programs for statistics and graphs as well as presentations.

المهارات:  
C- مهارات مهنية وعلمية:

**By the end of the program the graduate is expected to:**

- c1. Develop their practical skills.
- c2. Solve practical problems.
- c3. Design analytical protocols within a professional or workplace context.
- c4. Estimate the appropriate practical techniques encountered during the project.
- c5. Discuss the advanced theories and concepts for the scientific basis to understand their practical data and the outcomes of the project.
- c6. Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.
- c7. Assess their practical reports.

D- مهارات عامة:

**By the end of the program the graduate should have the ability to:**

- d1. Create effective communication of all kinds.
- d2. Acquire basis and indicators for evaluating performance of others.
- d3. Develop self- assessment and continuous learning.
- d4. Compare of different sources of information and knowledge.
- d5. Work in a team and the leadership of teams.
- d6. Manage a scientific meeting and the ability to manage time.



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٤ المعايير الأكاديمية للبرنامج: تم تبني المعايير العامة الاسترشادية التي اعتمدها الهيئة القومية لضمان جودة التعليم و الاعتماد (ARS) في ٢٠٠٩ حيث تم صياغة معايير أكاديمية قياسية من هذه المعايير و هي:

#### **Knowledge and Understanding**

By the end of studying master's Chemistry field program graduates must be able to grasp:

- 1 - Theories and fundamentals related to biochemistry field of learning as well as in related areas.
- 2 - Reciprocal influence between professional practice and its impacts on the environment.
- 3 - Scientific developments in chemistry field of specialization.
- 4 - Legal and ethical principles of professional practice in the analytical chemistry field
- 5 - The principles and basics of quality in professional practice in the field of specialization.
- 6 - Basics and ethics of scientific research.

#### **٤-2 Intellectual Skills**

By the end of studying Master's Chemistry program graduates should be able to:

- 1 - Analyze and evaluate information in the field of specialization and analogies to solve problems.
- 2 - Solve specialized problems with the non-availability of some data.
- 3 - Link knowledge to solve various professional problems.
- 4 - Conduct a research study and / or writing a scientific methodological study on a research problem.
- 5 - Risk assessment in professional practices in the chemistry field.
- 6 - Planning to improve performance in the biochemistry field of specialization.
- 7 - Make career decisions in various professional contexts.

#### **٤-٣ Professional Skills**

By the end of studying master's chemistry program graduates must be able to:

- 1 - Master the basic and modern professional skills in the chemistry specialization.
- 2 - Write and evaluate professional reports.
- 3 - Evaluate methods and tools existing in the area of specialization.

#### **٤-٤ general skills and transferable**

By the end of studying chemistry Master's program graduates should be able to:

- 1 - Effective communication of all kinds.
- 2 - Use information technology to serve the professional practice.
- 3 - Self-assessment and identify personal learning needs.
- 4 - Use different sources to obtain information and knowledge.
- 5 - Develop rules and indicators for assessing the performance of others.
- 6 - Work in teams and lead teams in various professional contexts.



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7 - Time management efficiency.

8 - Self-learning and ongoing.

مدى اتساق المعايير الأكاديمية المعتمدة من الهيئة (ARS) مع المعايير الأكاديمية التي اعتمدها للبرنامج.

المعايير الأكاديمية المعتمدة من الهيئة (ARS)	المعايير الأكاديمية التي اعتمدها البرنامج	
(أ) النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة	1. Theories and fundamentals related to biochemistry field of learning as well as in related areas.	المعرفة و الفهم
(ب) التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة	2. Reciprocal influence between professional practice and its impacts on the environment.	
(ت) التطورات العلمية في مجال التخصص	3. Scientific developments in chemistry field of specialization.	
(ث) المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.	4. Legal and ethical principles of professional practice in the analytical chemistry field.	
(ج) مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص.	5. The principles and basics of quality in professional practice in the field of specialization.	
(ح) أساسيات وأخلاقيات البحث العلمي.	6. Basics and ethics of scientific research.	
(أ) تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل.	1. Analyze and evaluate information in the field of specialization and analogies to solve problems.	المهارات الذهنية
(ب) حل المشاكل المتخصصة مع عدم توافر بعض المعطيات.	2. Solve specialized problems with the non-availability of some data.	
(ت) الربط بين المعارف المختلفة لحل المشاكل المهنية.	3. Link knowledge to solve various professional problems.	
(ث) إجراء دراسة بحثية و/ أو كتابة دراسة علمية منهجية حول مشكلة بحثية.	4. Conduct a research study and / or writing a scientific methodological study on a research problem.	
(ج) تقييم المخاطر في الممارسات المهنية في مجال التخصص.	5. Risk assessment in professional practices in the chemistry field.	
(ح) التخطيط لتطوير الأداء في مجال التخصص.	6. Planning to improve performance in the biochemistry field of specialization.	
(خ) اتخاذ القرارات المهنية في سياقات مهنية متنوعة	7. Make career decisions in various professional contexts.	
أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص	1. Master the basic and modern professional skills in the chemistry specialization.	المهارات المهنية
ب- كتابة و تقييم التقارير المهنية	2. Write and evaluate professional reports.	
ت- تقييم الطرق و الأدوات القائمة في مجال التخصص	3. Evaluate methods and tools existing in the area of specialization.	
أ- التواصل الفعال بأنواعه المختلفة	1. Effective communication of all kinds.	المهارات العامة
ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية	2. Use information technology to serve the professional practice.	
ت- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية	3. Self-assessment and identify personal learning needs.	
ث- استخدام المصادر المختلفة للحصول على المعلومات و المعارف	4. Use different sources to obtain information and knowledge.	
ج- وضع قواعد ومؤشرات تقييم أداء الآخرين	5. Develop rules and indicators for assessing the performance of others.	
ح- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة	6. Work in teams and lead teams in various professional contexts.	



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7. Time management efficiency.	خ- إدارة الوقت بكفاءة
8. Self-learning and ongoing	د- التعلم الذاتي و المستمر

5- العلامات المرجعية: لا ينطبق  
6- هيكل ومكونات البرنامج:

#### 4. Curriculum structure and contents

##### 4.a- Program duration:

Full-time: Minimum : 4 essential semester

Maximum:10 essential semester.

##### 4.b- Program structure

Total: 36 credit hours ( 18 credit hours compulsory, 6 credit hours elective, 12 credit hours thesis)

أ- مدة البرنامج: حد ادنى ٢ فصل دراسي طبقا للائحة الدراسات العليا.

ب- هيكل البرنامج:

إجمالي	24	نظري	36
%	0	مقررات العلوم الأساسية:	-
%	-	مقررات العلوم الإجتماعية والإنسانية:	0
%	100	مقررات علوم التخصص:	8
%	0	مقررات من علوم أخرى (حاسب آل التدريب الميداني): لا يوجد.	0

ج- مستويات البرنامج (في نظام الساعات المعتمدة): مستويين

اختياري : ٣

المستوى الاول / ترم اول: يلزم اجتياز ١١ ساعة الزامى : ٨

اختياري : ٣

المستوى الاول / ترم ثانى : يلزم اجتياز ١٣ ساعة الزامى : ١٠

المستوى الثانى: رسالة بحثية.



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د. مقررات البرنامج:

أ- إلزامي:

كود أو رقم المقرر	إسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسي
			نظري	تمارين	عملي		
143629 C	Quantum Chemistry	2	2			تمهيدى ماجستير	الاول
143630 C	Advanced Analytical Chemistry	2	2			تمهيدى ماجستير	الاول
143631 C	Analysis By Nuclear Activation Analysis	2	2			تمهيدى ماجستير	الاول
143632 C	Surface And Colloid Chemistry	2	2			تمهيدى ماجستير	الاول
143633 C	Advanced Environmental Chemistry	1	1			تمهيدى ماجستير	الثانى
143634 C	Molecular Spectroscopy	2	2			تمهيدى ماجستير	الثانى
143635 C	Advanced Techniques In Electrochemistry	2	2			تمهيدى ماجستير	الثانى
143636 C	Inorganic Reaction Mechanism	2	2			تمهيدى ماجستير	الثانى
143637 C	Photochemistry	2	2			تمهيدى ماجستير	الثانى
143638 C	Statistics And Application In Chemistry	1	1			تمهيدى ماجستير	الثانى
143699 C	Thesis	12	12			تمهيدى ماجستير	الثانى

ب- إختياري:

كود أو رقم المقرر	إسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسي
			نظري	تمارين	عملي		
143638 E	Electrochemical Methods Of Analysis	1	1			تمهيدى ماجستير	الاول أو الثانى
143639 E	Group Theory	1	1			تمهيدى ماجستير	الاول أو الثانى
143640 E	Solid State Chemistry	1	1			تمهيدى ماجستير	الاول أو الثانى
143641 E	Industrial Technology Of Building Materials	1	1			تمهيدى ماجستير	الاول أو الثانى
143642 E	Chemical separation methods	1	1			تمهيدى ماجستير	الاول أو الثانى
143643 E	Instrumental Analysis	1	1			تمهيدى ماجستير	الاول أو الثانى
143644 E	X-Ray Analysis	1	1			تمهيدى ماجستير	الاول أو الثانى
143645 E	Catalysis	1	1			تمهيدى ماجستير	الاول أو الثانى





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#### ٧- محتويات المقررات: ينظر محتوى توصيف المقررات

#### ٨- متطلبات الإلتحاق بالبرنامج:

يشترط لقيد الطالب في مرحلة تمهيدي الماجستير مايلي:

- ١- أن يكون حاصلًا على درجة البكالوريوس في العلوم بتقدير عام جيد على الأقل من إحدى الجامعات المصرية، أو أن يكون حاصلًا على درجة معادلة لها ومعترف بها من المجلس الأعلى للجامعات بتقدير عام جيد على الأقل، أو أن يكون حاصلًا على أحد دبلومات الدراسات العليا من إحدى الجامعات المصرية أو الكليات أو المعاهد الأخرى المعترف بها من المجلس الأعلى للجامعات بتقدير عام جيد على الأقل.
- ٢- بالنسبة لغير الحاصلين على درجة البكالوريوس في العلوم، يشترط أن يجتاز الإمتحان بنجاح في المقررات الدراسية التي تنقسه من مرحلة البكالوريوس وفقا للنظام الذي يقرره مجلس الكلية بناءً على إقتراح مجلس القسم العلمي المختص.
- ٣- بالنسبة للطلاب الوافدين، يحدد مجلس الجامعة بعد أخذ رأي مجلس الكلية شروط قيدهم في الدراسات العليا.

#### ٩- القواعد المنظمة لإستكمال بالبرنامج:

على الطالب ان يجتاز 36 ساعة معتمدة حسب الخطة الدراسية التي يعدها كل قسم علمي وفقا لأحكام هذه اللائحة، وتوزع هذه المتطلبات كما يلي:

- ١- دراسة مقررات دراسية بواقع ٢٤ ساعة معتمدة، منها عدد ١٨ ساعة معتمدة متطلبات أساسية، وعدد ٦ ساعات معتمدة متطلبات اختيارية، وإجتياز هذه المقررات بنجاح وتحقيق معدل تراكمي لا يقل عن (C).
- ٢- التقدم برسالة بحثية (تعادل ١٢ ساعة معتمدة) في موضوع يقرره مجلس الكلية بناءً على إقتراح مجلس القسم العلمي المختص، وإجازتها بنجاح وفقا للقواعد التي يحددها قانون تنظيم الجامعات رقم ٤٩ لسنة ١٩٧٣ وتعديلاته ولأحكام مواد لائحته التنفيذية.
- ٣- أن يجتاز المستوى اللغوي ودورة الحاسب الآلي بنجاح طبقا للنظام الذي يقرره مجلس الجامعة.
- ٤- يمنح الراسب في أي من مقررات الماجستير فرصة واحدة لإعادة الدراسة والإمتحان في المقررات التي رسب فيها، ويجوز قيده مرة ثانية في تخصص آخر داخل نفس القسم بناءً على توصية مجلس القسم وموافقة مجلس الكلية.
- ٥- أن يكون للطالب بحث واحد على الأقل مستخرج من الرسالة ومقبول للنشر في إحدى الدوريات المرجعية.

#### Grading System:

The final overall marks determine the degree classification as follows:

Grade	Percentage	Points
A	95 - 100 %	4.00
A <sup>-</sup>	90 - > 95 %	3.67
B <sup>+</sup>	85 - > 90 %	3.33
B	80 - > 85 %	3.00
B <sup>-</sup>	75 - > 80 %	2.67
C <sup>+</sup>	70 - > 75 %	2.33
C	65 - > 70 %	2.00
C <sup>-</sup>	60 - > 65 %	1.67
D <sup>+</sup>	55 - > 60 %	1.33
D	50 - > 55 %	1.00
F	> 50 %	0.00



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١٠- طرق وقواعد تقييم الملتحقين بالبرنامج:

الطريقة	النسبة من الدرجات الكلية	ماتقيسة من المخرجات التعليمية المستهدفة
تمهيدى	٤٠%	المعرفة و الفهم – القدرات الذهنية- المهارات المهنية – المهارات العامه
	٦٠%	المعرفة و الفهم- القدرات الذهنية.
الرسالة البحثية	الموافقه على التسجيل لدرجة الماجستير	المعرفة و الفهم – القدرات الذهنية- المهارات المهنية – المهارات العامه
	منح درجة الماجستير	
	عمل سيمينار قبل التسجيل تقرير سنوى من المشرفين على رساله . عمل السيمينار قبل المناقشه.	
	٣- عرض الرساله و المناقشه امام لجنة الحكم و المناقشه.	

١١- طرق تقويم البرنامج:

العينة	الوسيلة	القائم بالتقويم
10%	استبيان	الطلاب
عينة ممثلة	استبيان	الخريجون
عينة تقريبية	مقابلات شخصية- استبيانات	أصحاب الأعمال
١ على الاقل	مراجعة البرنامج وكتابة تقارير	مقيم خارجى
جميع المشاركين فى البرنامج	مقابلات شخصية	المتخصصين الأكاديميين

المسنول عن البرنامج: د. سحر كمال محمد التاريخ: ٢٠١٧ التوقيع:

# مصفوفات البرنامج



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نموذج رقم (١١) (ب)

Non organic Chem.(master)	مسمى البرنامج
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جامعة : حلوان

كلية: العلوم

قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من البرنامج التعليمي مقابل المعايير الأكاديمية القياسية

	المعارف والمفاهيم	القدرات الذهنية	مهارات مهنية	مهارات عامة
ARS for master in non organic chemistry				



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Knowledge and Understanding																										
	a1.	a2.	a3.	a4.	a5.	a6.	b1.	b2.	b3.	b4.	b5.	c1.	c2.	c3.	c4.	c5.	c6.	c7.	d1.	d2.	d3.	d4.	d5.	d6.		
Theories and fundamentals related to non organic chemistry field of learning as well as in related areas.	x																									
Reciprocal influence between professional practice and its impacts on the environment. Theories and fundamentals related to non organic chemistry field of learning as well as in related areas.		x		x																						
Scientific developments in chemistry field of specialization.					x																					
Legal and ethical principles of professional practice in the analytical						x																				







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الجودة

# (ب) مصفوفة مخرجات التعلم في مقابل المقررات الدراسية

نموذج رقم (١١) (ب)





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Non organic Chem.( premaster)	مسمى البرنامج
-------------------------------	---------------

جامعة : حلوان  
كلية: العلوم  
قسم : الكيمياء

**(ب) مصفوفة مخرجات التعلم في مقابل المقررات الدراسية**

المقررات الدراسية	كود المقرر	المعارف والمفاهيم						القدرات الذهنية					مهارات مهنية						مهارات عامة						
		a1.	a2.	a3.	a4.	a5.	a6.	b1.	b2.	b3.	b4.	b5.	c1.	c2.	c3.	c4.	c5.	c6.	c7.	d1.	d2.	d3.	d4.	d5.	d6.
Quantum chemistry	١٤٣٦٢٩	X		x	x				x	x		x					x			x	x	X	x	x	x
Advanced analytical chemistry	١٤٣٦٣٠	x	x		x			x		x	x		x		x	x			x	x	x	X	x	x	x
Analysis by nuclear activation analysis	143631		x		x	x		x				x	x				X		x	x	x	X	x	x	x
Surface and colloid chemistry	143632	x		x	x	x		x	x							x	X		x	x	x	X	x	x	x
Advanced environmental chemistry	١٤٣٦٣٣	x	x	x		x		x		x	x		x				X		x	x	x	X	x	x	x



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Molecular spectroscop	143634	x	x	x		x		x			x	x		x	x	x	x			x	x	X	x	x	x
Advanced techniques in electrochemistry	143635E	x	x	x		x		x			x	x		x	x	x	x			x	x	X	x	x	x
Inorganic reaction mechanism	143636 E	x	x	x		x		x			x	x		x	x	x	x			x	x	X	x	x	x
photochemistry	143637	x		x	x		x		x	x	x	x		x	x	x	x			x	x	X	x	x	x
Statistics and application in chemistry	143638 C	x		x				x		x				x		x						X	x		
Electrochemical methods of analysis	143638 E	x				x	x	x		x	x	x				x			x	x		X			x
Group theory	143639 E	x		x				x	x		x			x	x					x	x	X			x
Solid state chemistry	143640 E	x			x			x	x	x				x	x	x	x			x	x	X	x		x
Industrial technology of building materials	143641 E				x	x	x	x			x	x		x	x	x	x			x	x	X			x
Chemical separation methods	143642 E	x	x		x		x	x	x			x			x	x	x		x	X		x	x	x	x
Instrumental analysis	143643 E																			X	x	x	x	x	x
X-Ray analysis	143644 E	x	x		x			x	x		x				x	x	x			X	x	x	x	x	
Catalysis	143645 E		x	x	x	x		x	x	x					x	x	x			X	x	x	x	x	x
Thesis								x				x	x	x	x	x			x	X	x	x	x	x	x

رئيس مجلس القسم العلمي:

ا.د./ وفاء غنيم شوشه

منسق البرنامج:

د. سحر كمال محمد



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(ج) مصفوفة المعارف و المهارات المستهدفة في مقابل أهداف البرنامج



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وحدة ضمان الجودة

جامعة : حلوان  
كلية: العلوم  
قسم : الكيمياء

Non organic Chem.(premaster)	مسمى البرنامج
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(ج) مصفوفة المعارف و المهارات المستهدفة في مقابل أهداف البرنامج

الأهداف العامة للبرنامج General aims of the program	المعارف والمفاهيم						القدرات الذهنية					مهارات مهنية						مهارات عامة						
	a1.	a2.	a3.	a4.	a5.	a6.	b1.	b2.	b3.	b4.	b5.	c1.	c2.	c3.	c4.	c5.	c6.	c7.	d1.	d2.	d3.	d4.	d5.	d6.
Provide students with the knowledge and skills necessary to conduct physical, inorganic and	X	X	X	X	X	X																		



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analytical research in the related fields.																									
Enable students to update and develop their expertise through acquiring knowledge and professional skills in non organic chemistry fields.						X	X	X	X	X	X	X	X	X	X	X	X								
Use modern technological and self-learning in the field of non organic chemistry.											X	X	X	X	X	X	X								
Provide students with the skills, ethics, and methodologies to serve the needs of the environment and society.											X	X	X	X	X	X	X								
Provide graduates with the ethics of scientific research and the basics of quality in the study of non organic chemistry.											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Acquire student's skills of effective communication, integrity and credibility commitment.																		X	X	X	X	X	X	X	

رئيس مجلس القسم العلمي:

ا.د. / وفاء غنيم شوشه

منسق البرنامج:

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## (د) مصفوفة المعارف و المهارات المستهدفة في البرنامج مقابل مواصفات الخريج



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وحدة ضمان الجودة

نموذج رقم (١١) (أب)

Non organic Chemistry (pre master)	مسمى البرنامج
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جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(د) مصفوفة المعارف و المهارات المستهدفة في البرنامج مقابل مواصفات الخريج

مواصفات الخريج Graduate attributes	المعارف والمفاهيم						القدرات الذهنية					مهارات مهنية						مهارات عامة						
	a1.	a2.	a3.	a4.	a5.	a6.	b1.	b2.	b3.	b4.	b5.	c1.	c2.	c3.	c4.	c5.	c6.	c7.	d1.	d2.	d3.	d4.	d5.	d6.
1- Apply professionally the fundamentals and methodologies of scientific research	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X				X		



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and the use of various tools.																										
2- Analyze and use data in the fields of non organic chemistry.					x	x							x	x				x								
3- Apply the specialized knowledge gained in the professional practice.																										
4- Show awareness of the current problems and modern visions in the field of specialization.				x																						
5- Identify problems and propose professional solutions to it.					x	x																				
6- Master the professional skills and appropriate use of technology in professional practice.					x	x																				
7- Communicate and lead teams to work through the professional systematic work.																										
8- Making decisions in light of available information.																										
9- Employment of available resources effectively.																										
10- Perceive his role in the developing society and preserve the environment.																										
11- Behave in a manner reflecting the commitment to integrity and credibility, and the rules of the profession and accept accountability.																										





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12- Realize the need to develop himself  
professionally and academically.

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منسق البرنامج:

د. سحر كمال محمد



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# (هـ) مصفوفة المعارف و المهارات المستهدفة في مقابل رؤية و رسالة و أهداف الكلية

نموذج رقم ( ١١ ب )



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وحدة ضمان  
الجودة

Non organic Chem.(premaster)	مسمى البرنامج
------------------------------	---------------

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(هـ) مصفوفة المعارف و المهارات المستهدفة في مقابل رؤية و رسالة و أهداف الكلية

	المعارف والمفاهيم						القدرات الذهنية						مهارات مهنية						مهارات عامة					
	a1.	a2.	a3.	a4.	a5.	a6.	b1.	b2.	b3.	b4.	b5.	c1.	c2.	c3.	c4.	c5.	c6.	c7.	d1.	d2.	d3.	d4.	d5.	d6.
<p><b>رؤية Vision</b> تطمح كلية العلوم جامعة حلوان إلى تحقيق التميز في تقديم خدمة تعليمية في مجال العلوم الأساسية والبحث العلمي التطبيقي والتكنولوجيا الحديثة</p>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X



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رسالة كلية العلوم: كلية العلوم جامعة حلوان مؤسسة تعليمية حكومية تعمل على إعداد خريج متميز علميا قادر على المنافسة في سوق العمل وذلك من خلال تقديم برامج أكاديمية في مجال العلوم الأساسية والتطبيقية طبقا لمعايير الجودة وبحوث ودراسات علمية لبناء قاعدة بحثية تكنولوجية متطورة والمشاركة الفعالة في خدمة وتنمية المجتمع محليا وإقليميا	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

رئيس مجلس القسم العلمي:

ا.د./ وفاء غنيم شوشه

منسق البرنامج:

د. سحر كمال محمد



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# (و) مصفوفة أساليب التعليم و التعلم المتبناه في مقابل المقررات الدراسية للبرنامج

نموذج رقم (١١ب)



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الجودة

Non organic Chem.(master)	مسمى البرنامج
---------------------------	---------------

جامعة : حلوان

كلية: العلوم

قسم : الكيمياء

(و) مصفوفة أساليب التعليم و التعلم المتبناه في مقابل المقررات الدراسية للبرنامج

المقررات الدراسية	Lectures	Discussion sessions	Brain storm	Solving problems	Seminars and presentations (cooperative learning)	Self-learning
Quantum chemistry	x	x	x	x		X
Advanced analytical chemistry	x	x	x		X	
Analysis by nuclear activation analysis	x	x	X		X	X
Surface and colloid chemistry	x	x	X		X	X
Advanced environmental chemistry	x	x	X		X	X
Molecular spectroscop	x	x	X	X	X	X
Advanced techniques in electrochemistry	x	x	X		X	X
Inorganic reaction mechanism	x	x	X		X	X



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photochemistry	x	x	X		X	X
Statistics and application in chemistry	x	x	x	X	X	X
Electrochemical methods of analysis	x	x	x		X	
Group theory	x	x	x	X	X	X
Solid state chemistry	x	x	x		X	X
Industrial technology of building materials	x	x	x		X	X
Chemical separation methods	x	X	x		X	X
Instrumental analysis	x	X	x	X	X	X
X-Ray analysis	x	X	x	X	X	X
Catalysis	x	X	x		X	X
Thesis		x	x	X	X	X

رئيس مجلس القسم العلمي:

ا.د./ وفاء غنيم شوشه

منسق البرنامج:

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## (ى) مصفوفة أساليب التقويم في مقابل المقررات الدراسية للبرنامج

نموذج رقم ( ١١ب )

Non organic Chem.(master)	مسمى البرنامج
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جامعة : حلوان





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كلية: العلوم

قسم: الكيمياء

**(ى) مصفوفة أساليب التقويم فى مقابل المقررات الدراسية للبرنامج**

المقررات الدراسية	امتحان تحريري	أعمال فصلية		Seminar	Journal publication	Oral exam thesis
		Report	Mid term			
Quantum chemistry	x	X	X	X		
Advanced analytical chemistry	x	X	X	X		
Analysis by nuclear activation analysis	x	X	X	X		
Surface and colloid chemistry	x	X	X	X		
Advanced environmental chemistry	x	X	X	X		
Molecular spectroscop	x	X	X	X		
Advanced techniques in electrochemistry	x	X	X	X		
Inorganic reaction mechanism	x	X	X	X		
photochemistry	x	X	X	X		
Statistics and application in chemistry	x	X	X	X		
Electrochemical methods of analysis	x	X	X	X		
Group theory	x	X	X	X		



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<b>Solid state chemistry</b>	x	X	X	X		
<b>Industrial technology of building materials</b>	x	X	X	X		
<b>Chemical separation methods</b>	x	X	X	X		
<b>Instrumental analysis</b>	x	X	X	X		
<b>X-Ray analysis</b>	x	X	X	X		
<b>Catalysis</b>	x	X	X	X		
<b>Thesis</b>				x	x	x

رئيس مجلس القسم العلمي:

ا.د./ وفاء غنيم شوشه

منسق البرنامج:

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## (ك) مصفوفة مواصفات الخريج في مقابل أهداف البرنامج

Non organic Chem.(premaster)	مسمى البرنامج
------------------------------	---------------

(ك) مصفوفة مواصفات الخريج في مقابل أهداف البرنامج



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<p>الأهداف العامة للبرنامج General aims of the program</p>	1-Apply professionally the fundamentals and methodologies of scientific research and the use of various tools.	2-Analyze and use data in the fields of non organic chemistry.	3- Apply the specialized knowledge gained in the professional practice.	4-Show awareness of the current problems and modern visions in the field of specialization.	5-Identify problems and propose professional solutions to it.	6-Master the professional skills and appropriate use of technology in professional practice.	7-Communicate and lead teams to work through the professional systematic work.	8-Making decisions in light of available information.	9-Employment of available resources effectively.	10-Perceive his role in the developing society and preserve the environment.	11-Behave in a manner reflecting the commitment to integrity and credibility, and the rules of the profession and accept accountability.	12- Realize the need to develop himself professionally and academically.
Provide students with the knowledge and skills necessary to conduct physical, inorganic and analytical research in the related fields.	x	x	x					x				
Enable students to update and develop their expertise through acquiring knowledge and professional skills in non organic chemistry fields.					x	x				x	x	x



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Use modern technological and self-learning in the field of non organic chemistry.									x			
Provide students with the skills, ethics, and methodologies to serve the needs of the environment and society.				x							x	
Provide graduates with the ethics of scientific research and the basics of quality in the study of non organic chemistry.								x			x	
Acquire student's skills of effective communication, integrity and credibility commitment.							x					

رئيس مجلس القسم العلمي:

د.د. وفاء غنيم شوشه

منسق البرنامج:

د. سحر كمال محمد

**توصيف مقررات**  
**ماجستير الكيمياء اللاعضوية**  
**2016/2017**

منسق البرنامج : د. سحر كمال محمد

رئيس مجلس القسم العلمى أ.د. وفاء غنيم شوشة



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وحدة ضمان الجودة

نموذج رقم (١٢)

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر		
الفرقة / المستوى : Premasters- .1 <sup>st</sup> semester	اسم المقرر : Advanced Quantum Chemistry	الرمز الكودي : ١٤٣٦٢٩
عدد الوحدات الدراسية : 2 نظري		التخصص : Non organic Chemistry
<ul style="list-style-type: none"> <li>To present a reasonably rigorous treatment of the molecular orbital theories.</li> <li>To embrace subjects those are of theoretical interest to organic and inorganic, as well as physical chemists.</li> </ul>		٢- هدف المقرر :
٣- المستهدف من تدريس المقرر :		
<p><b>By the end of the course the graduate is expected to:</b></p> <p>a1. List the application of modern theories in quantum chemistry</p> <p>a2. Extend student s skills in literature search engines.</p> <p>a3. Relate the advanced principles of the subject matter to the literature of physical chemical analysis methods.</p>		أ- المعلومات و المفاهيم :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>b1. Utilize theories to overcome complex problems of a familiar and unfamiliar nature.</p> <p>b2. Assume hypothesis through statistical interpretation of experimental data. Analysis of search results using theories and statistical tests.</p> <p>b3. Select the suitable computational programs for statistics and graphs as well as presentations.</p>		ب - المهارات الذهنية :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>C1 Solve practical problems.</p> <p>C2 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.</p>		ج - المهارات المهنية الخاصة بالمقرر :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>d1 Create effective communication of all kinds.</p> <p>d2 Acquire basis and indicators for evaluating performance of others.</p> <p>d3 Develop self- assessment and continuous learning.</p> <p>d4 Compare of different sources of information and knowledge.</p> <p>d5 Work in a team and the leadership of teams.</p> <p>d6 Manage a scientific meeting and the ability to manage time.</p>		د - المهارات العامة :
<p>-An introduction to Quantum Chemistry.</p> <p>-Huckel Molecular Orbital ,HMO MO method.</p> <p>-Applications to HMO method</p> <p>-Variation of HMO parameters.</p> <p>-Pariser-Parr-Pople Self-Consistent Field, PPP-SCF method.</p> <p>-Applications of PPP-SCF in the field of spectroscopy.</p>		٤- محتوى المقرر :
<p>- Lectures</p> <p>- Discussion sessions</p>		٥- اساليب التعليم و التعلم



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-Solving problems sessions to gain -practical skills - Brain storm. - Cooperative learning.	
- Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
	٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations,quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week ٩th Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>• Final-Term exam 60 %</li> <li>• Semester work + attendance 20 %</li> <li>• Midterm exam 20 %</li> </ul> <p style="text-align: right;">Total 100%</p>	ج- توزيع الدرجات
	٨- قائمة الكتب الدراسية و المراجع :
	أ- مذكرات لا يوجد
-Quantum Chemistry, John P. Lowe, Academic Press New York 2 <sup>nd</sup> ed. -Molecular Orbital Theories for organic chemists, A. Streitweiser, JR.	ب- كتب ملزمة
- Quantum Chemistry, Fundamentals and applications, T.Veszpremi, Mklos and Feher	ج- كتب مقترحة
- Quantum Chemistry.-Quantchem.Kuleuven.be /Theoretical Chemistry-Exp.html.	د- دوريات علمية أو نشرات ... إلخ

رئيس مجلس القسم العلمي: أ.د/ ا. د /وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عادل احمد





Faculty of Science

" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

The Quality of Basic Sciences is the Assurance for Other Sciences



وحدة ضمان الجودة

نموذج رقم (١١) (أ)

Advanced Quantum Chemistry	مسمى المقرر
143629	كود المقرر

جامعة : حلوان.  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية	المهارات الذهنية			المعارف الرئيسية		اسبوع الدراسة	المحتويات للمقرر	
d6	Manage a scientific meeting and the ability to manage time.									
d5	Work in a team and the leadership of teams.									
d4	Compare of different sources of information and knowledge.									
d3	Develop self- assessment and continuous learning.									
d2	Acquire basis and indicators for evaluating performance of others.									
d1	Create effective communication of all kinds.									
C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	X								
C1	Solve practical problems									
b3.	Select the suitable computational programs for statistics and graphs as well as presentations.									
b2.	Assume hypothesis through statistical interpretation of experimental data. Analysis of search results using theories and statistical tests.			x						
b1.	Utilize theories to overcome complex problems of a familiar and unfamiliar nature.				X					
a3.	Relate the advanced principles of the subject matter to the literature of physical chemical analysis methods					X				
a2.	Extend student s skills in literature search engines.									
a1.	List the application of modern theories in quantum chemistry						X			
								1-2	An introduction to Quantum Chemistry.	
				X				x	3-5	Huckel Molecular Orbital ,HMO MO method
X	X	X		X	X				6-7	Applications to HMO method
X						x			8-9	Variation of HMO parameters
			X				X		10-11	Pariser-Parr-Pople Self-Consistent Field, PPP-SCF method
	X	X	x				X		12	Applications of PPP-SCF in the field of spectroscopy.

رئيس مجلس القسم العلمي: أ.د/ ا. د /وفاء غنيم شوشة

أستاذ المقرر: ا.د/ عادل أحمد



Faculty of Science

" إن جودة العلوم الأساسية هي  
الضمان للعلوم الأخرى "

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وحدة ضمان  
الجودة

نموذج رقم (١١أ)

Advanced Quantum Chemistry	مسمى المقرر
143629	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية	المهارات الذهنية	المعارف الرئيسية	أساليب التقويم																				
d6	Manage a scientific meeting and the ability to manage time.	d5	Work in a team and the leadership of teams.	d4	Compare of different sources of information and knowledge.	d3	Develop self- assessment and continuous learning.	d2	Acquire basis and indicators for evaluating performance of others.	d1	Create effective communication of all kinds.	C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	C1	Solve practical problems	b3.	Select the suitable computational programs for statistics and graphs as well as presentations.	b2.	Assume hypothesis through statistical interpretation of experimental data. Analysis of search results using theories and statistical tests.	b1.	Utilize theories to overcome complex problems of a familiar and unfamiliar nature.	a3.	Relate the advanced principles of the subject matter to the literature of physical chemical analysis methods	a2.	Extend student s skills in literature search engines.	a1.	List the application of modern theories in quantum chemistry		
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Semester work
												X								X									Midterm
												X	X							X	X								Final written exam

رئيس مجلس القسم العلمي: أ.د/ ا. د /وفاء غنيم شوشة

أستاذ المقرر: ا.د/ عادل أحمد



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" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

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وحدة ضمان الجودة

نموذج رقم (١١)

Advanced Quantum Chemistry	مسمى المقرر
143629	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية	المهارات الذهنية	المعارف الرئيسية	أساليب التعليم و التعلم
d6	Manage a scientific meeting and the ability to manage time.								
d5	Work in a team and the leadership of teams.								
d4	Compare of different sources of information and knowledge.								
d3	Develop self- assessment and continuous learning.								
d2	Acquire basis and indicators for evaluating performance of others.								
d1	Create effective communication of all kinds.								
C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.								
C1	Solve practical problems								
b3.	Select the suitable computational programs for statistics and graphs as well as presentations.								
b2.	Assume hypothesis through statistical interpretation of experimental data. Analysis of search results using theories and statistical tests.								
b1.	Utilize theories to overcome complex problems of a familiar and unfamiliar nature.								
a3.	Relate the advanced principles of the subject matter to the literature of physical chemical analysis methods								
a2.	Extend student s skills in literature search engines.								
a1.	List the application of modern theories in quantum chemistry								
									Lectures
									Discussion sessions
									Brain storm
									Solving problems
									Seminars (cooperative learning)

رئيس مجلس القسم العلمي: أ.د/ ا. د /وفاء غنيم شوشة

أستاذ المقرر: ا.د/ عادل أحمد



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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

جامعة / حلوان  
كلية / العلوم  
قسم : الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر		
الفرقة / المستوى : / first term / تمهيدى ماجستير	اسم المقرر : Advanced Analytical chemistry	الرمز الكودي: ١٤٣٦٣٠
عدد الوحدات الدراسية : نظري ( 2 )		التخصص: Non organic Chemistry
The course aims to provide student with general theoretical basis of instrumental analysis, standard operating conditions, quality assurance, making measurements and reporting and modern chromatographic methods to complement their scientific knowledge and allow them to solve the analytical problems.		٢- هدف المقرر :
		٣- المستهدف من تدريس المقرر :
<b>By the end of the course the graduate is expected to:</b>  a1. Outline the latest findings in the field of analytical chemistry with respect to standard operating conditions, quality assurance, and making measurements and reporting. a2. Find the updates in instruments and instrumental techniques that are of contemporary importance in the chemical sciences. a3. Relate the advanced principles of the subject t matter to the literature of chemical analysis methods. a4. Illustrate the strategies to manage problems in new or unfamiliar context.		أ- المعلومات والمفاهيم :
<b>By the end of the course the graduate is expected to:</b>  b1. Construct the suitable search plan to solve industrial problems using analytical methods. b2. Utilize theories to overcome complex separation problems of a familiar and unfamiliar nature. b3. Analyze search results using theories and statistical tests		ب- المهارات الذهنية :
<b>By the end of the course the graduate is expected to:</b>  C1 Solve practical separation problems. C2 Design analytical protocols within a professional context. C3 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project. C4 Assess their practical reports. C5 Predict the risk assessments based on their awareness of health, safety issue and legal responsibilities.		ج- المهارات المهنية الخاصة بالمقرر :
<b>By the end of the course the graduate is expected to:</b>  d1 Create effective communication of all kinds. d2 Compare of different sources of information and knowledge. d3 Work in a team and the leadership of teams.		د - المهارات العامة :
1- Physico- chemical methods of analysis Calibration curve, prediction and factors		٤- محتوى المقرر :



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affecting it. 2- Standard curve techniques 3- Some reagents used in trace spectro - photometric determination Pre concentration methods of trace elements; Ion exchange, Solvent extraction, flotation, precipitation, electro wining	
Lectures - Discussion sessions - Brain storm. - Cooperative learning.	٥- أساليب التعليم والتعلم
Office hours	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة ٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3 ..... Final exam Week : to be decided by general exam	ب- التوقيت
<ul style="list-style-type: none"> <li>• Final-Term exam 60 %</li> <li>• Over all semester work 20 %</li> <li>• Midterm exam 20 %</li> </ul> <p>Total 100%</p>	ج- توزيع الدرجات
	٨- قائمة الكتب الدراسية والمراجع :
	أ- مذكرات
C.D. Christian , Joy Wiley & sons, Analytical chemistry, Latest edition	ب- كتب ملزمة
R. A. Day, J. R., A. L. Underwood Quantitative analytical chemistry, Practice Hall, Latest Edition.	ج- كتب مقترحة
	د- دوريات علمية أو نشرات ... الخ

رئيس مجلس القسم العلمي: أ.د. د /وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عبد الفتاح بسطاوى فرج



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نموذج رقم (١١)

Advanced Analytical chemistry	مسمى المقرر
143630	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة	مهارات مهنية										اسبوع الدراسة	المحتويات للمقرر
	المهارات الذهنية					المعارف الرئيسية						
d3 Work in a team												
d2 Compare of different sources of information and knowledge.												
d1 Create effective communication of all kinds.												
C5 Predict the risk assessments based on their awareness of health, safety issue and legal responsibilities.												
C4 Assess their practical reports.												
C3 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project												
C2 Design analytical protocols within a professional context.												
C1 Solve practical separation problems.												
b3. Analyze search results using theories and statistical tests												
b2. Assume hypothesis through statistical interpretation of experimental data.												
b1. Construct the suitable search plan to solve industrial problems using analytical methods.												
Relate the advanced principles of the subject to matter to the literature of chemical analysis methods.												
a3. contemporary importance in the chemical sciences												
a2. Find the updates in instruments and instrumental techniques that are of												
a1. List the application of modern methods of instrumental analysis.												
											1-4	Physico- chemical methods of analysis Calibration curve, prediction and factors affecting it
											5-7	Standard curve techniques
											8-12	Some reagents used in trace spectro - photometric determination Pre concentration methods of trace elements; Ion exchange, Solvent extraction, flotation, precipitation, electro wining

رئيس مجلس القسم العلمي: أ.د. ا. د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عبد الفتاح بسطاوى فرج



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وحدة ضمان الجودة

نموذج رقم (١١)

Advanced Analytical chemistry	مسمى المقرر
143630	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة تحقق ملائمة أساليب التقويم مع المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة			مهارات مهنية					المهارات الذهنية			المعارف الرئيسية			المحتويات للمقرر	
d3	d2	d1	C5	C4	C3	C2	C1	b3.	b2.	b1.	a4.	a3.	a2.		a1.
Work in a team	Compare of different sources of information and knowledge.	Create effective communication of all kinds.	Predict the risk assessments based on their awareness of health, safety issue and legal responsibilities.	Assess their practical reports.	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project	Design analytical protocols within a professional context.	Solve practical separation problems.	Analyze search results using theories and statistical tests	Assume hypothesis through statistical interpretation of experimental data.	Construct the suitable search plan to solve industrial problems using analytical methods	Relate the advanced principles of the subject t matter to the literature of chemical analysis methods.	contemporary importance in the chemical sciences	Find the updates in instruments and instrumental techniques that are of	List the application of modern methods of instrumental analysis.	
	X	X	X							X			X	X	Semester work
X							X	X				X	X	X	Midterm
				X	X	X		X	X			X	X		Final written exam

رئيس مجلس القسم العلمي: أ.د. ا. د / وفاء غنيم شوشة

أستاذ المقرر: أ.د. عبد الفتاح بسطاوى فرج







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وحدة ضمان  
الجودة

نموذج رقم (١٢)

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر		
الفرقة / المستوى : تمهيدى ماجستير / first term	اسم المقرر : Analysis by neutrons activation methods	الرمز الكودى : 143631
عدد الوحدات الدراسية : 2 نظري		التخصص : Non organic Chemistry
1- Radioactive decay, isotopes and isobars, nuclear masses and nuclear stability, nuclear spin moments, structure of nuclei, 2- Neutron activation and applications in Chemistry. 3- interaction of radiation with matter (heavy charged ,electrons ,gamma rays) interaction of neutrons with matter ,the biological effects of radiation. 4- principles, calculations in neutron activation analysis ,sensitivity ,errors ,destructive and non destructive analysis ,production of neutrons ,nucleus reactors ,application of neutron		٢- هدف المقرر :
٣- المستهدف من تدريس المقرر :		
<b>By the end of the course the graduate is expected to:</b> a1. Find the updates in instruments and instrumental techniques that are used in nuclear chemistry sciences a2. Relate the advanced principles of the subject matter to the literature of nuclear chemistry. a3. illustrate the strategies to manage problems in nuclear chemistry.		أ- المعلومات و المفاهيم :
<b>By the end of the course the graduate is expected to:</b> b1. Construct the suitable search plan to solve nuclear related problems. b2. Analyze search results using theories and statistical tests. b3. Select the suitable computer programs for statistics and graphs as well as presentations.		ب - المهارات الذهنية :
<b>By the end of the course the graduate is expected to:</b> C1 Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities. C2 Assess their practical reports .		ج - المهارات المهنية الخاصة بالمقرر :
<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Work in a team and the leadership of teams. d6 Manage a scientific meeting and the ability to manage time.		د - المهارات الهامة :
1- Introduction to basic nuclear chemistry 2- Introduction of radiation with matter		٤- محتوى المقرر :



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3- Introduction of neutrons with matter 4- Production of neutrons 5- Neutron activation analysis 6- Application chemical trace element analysis 7- Application of isotopes for medicine 8- Counting with gamma spectrometry	
- Lectures with or without Data show - Discussion sessions - Brain storm. - cooperative learning. - oral presentations	٥- أساليب التعليم و التعلم
-Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>Final-Term exam 60 %</li> <li>Overall semester work + attendance 20 %</li> <li>Midterm exam 20 %</li> </ul> <p style="text-align: right;">Total 100%%</p>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
	أ- مذكرات لا يوجد
Essential books (text books) -Gpkchoppin nucleur chemistry 2010 كيمياء عناصر الوقود النووي عبد الحكيم قنديل دار الفكر العربي ٢٠٠٢ -مبادئ الكيمياء النووية عبد الحكيم قنديل دار الفكر العربي ٢٠٠٢ -النواه والانشطار النووي عبد الحكيم قنديل دار الفكر العربي ٢٠٠٥	ب- كتب ملزمة
	ج- كتب مقترحة
- Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ).	د- دوريات علمية أو نشرات ... إلخ

رئيس مجلس القسم العلمي : ا.د /وفاء غنيم شوشة

أستاذ المادة : أ.د/ عبد الحكيم قنديل







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وحدة ضمان الجودة

نموذج رقم (١١أ)

Analysis By Nuclear Activation Methods	مسمى المقرر
143631	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية	المهارات الذهنية	المعارف الرئيسية	أساليب التعليم و التعلم
d6	Manage a scientific meeting and the ability to manage time.					C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.		
d5	Work in a team and the leadership of teams.					C1	Solve practical problems		
d4	Compare of different sources of information and knowledge.					b3.	Select the suitable computer programs for statistics and graphs as well as presentations		
d3	Develop self- assessment and continuous learning.					b2.	Analyze search results using theories and statistical tests.		
d2	Acquire basis and indicators for evaluating performance of others.					b1.	Construct the suitable search plan to solve nuclear related problems.		
d1	Create effective communication of all kinds.					a3.	illustrate the strategies to manage problems in nuclear chemistry.		
						a2.	Relate the advanced principles of the subject matter to the literature of nuclear chemistry.		
						a1.	Find the updates in instruments and instrumental techniques that are used in nuclear chemistry sciences		
									Lectures
									Discussion sessions
									Brain storm
									Oral presentation
X	X	X	X	X					(cooperative learning)

رئيس مجلس القسم العلمي: ا. د وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عبد الحكيم قنديل



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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

جامعة حلوان  
كلية العلوم  
قسم الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر	
الفرقة / المستوي: Pre-master- 1 <sup>st</sup> term	اسم المقرر : Surface and Colloid Chemistry
الرمز الكودي: c 143632	عدد الوحدات الدراسية : نظري ( ٢ )
التخصص: Non organic Chem	٢- هدف المقرر :
1. To provide an introduction to adsorption of molecules on surfaces and adsorption isotherms. 2. Introduce and develop those aspects of surfaces forces: double layer forces, Van der Waals forces and steric forces. 3. Recognize the theories of the colloidal and surface chemistry.	
٣- المستهدف من تدريس المقرر :	
<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern methods and instrumental analysis used for colloidal systems. a2. Extend students skills in literature search engines and the writing of reports (including critical evaluation). a3. Relate the advanced principles of the colloidal systems and its properties to the literature of adsorption studies. a4. illustrate the strategies to synthesize and examine the colloidal systems..	أ- المعلومات والمفاهيم :
<b>By the end of the course the graduate is expected to:</b> b1. Construct the suitable techniques to stabilize the colloidal systems. b2. Utilize theories of steric stabilization and electrostatic stabilization to overcome the instability of the colloidal systems.	ب- المهارات الذهنية :
<b>. By the end of the course the graduate is expected to:</b> C1 Estimate the appropriate practical techniques to synthesize stable colloidal systems. C2 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project. C3 predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	ج- المهارات المهنية الخاصة بالمقرر :
<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Work in a team and the leadership of teams. d6 Manage a scientific meeting and the ability to manage time.	د - المهارات العامة :



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الجودة

- Lectures - Open Discussions - Brain storm. - cooperative learning. - oral presentations	٥- أساليب التعليم والتعلم
Office hours.	٦- أساليب التعليم والتعلم للطلاب نوى القدرات المحدودة ٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	
٨- قائمة الكتب الدراسية والمراجع :	
Course notes: a course note compiled by the lecturer Handouts are given to the students at every lecture	أ- مذكرات
	ب- كتب ملزمة
Voyutsky S.,(1978) "Colloid chemistry" Mir Publishers	ج- كتب مقترحة
	د- دوريات علمية أو نشرات ... الخ

أستاذ المادة : / أ.م.د. نيفين عبد العاطي خليفة

: رئيس مجلس القسم العلمي: ا. د وفاء غنيم شوشة



Faculty of Science

" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

The Quality of Basic Sciences is the Assurance for Other Sciences



وحدة ضمان الجودة

نموذج رقم ( ١١ ) أ

Surface and Colloid Chemistry	مسمى المقرر
143632	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية			المعارف الرئيسية		المهارات الذهنية		المحتويات للمقرر	
d6	Manage a scientific meeting and the ability to manage time.	C3	predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	a4.	illustrate the strategies to synthesize and examine the colloidal systems..	1-2	Introduction of colloid chemistry, classification & preparation			
d5	Work in a team and the leadership of teams.	C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	a3.	Relate the advanced principles of the colloidal systems and its properties to the literature of adsorption studies.	3-4	Optical properties of colloids			
d4	Compare of different sources of information and knowledge.	C1	Estimate the appropriate practical techniques to synthesize stable colloidal systems.	a2.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).	5-6	Stability of colloids			
d3	Develop self- assessment and continuous learning.			a1.	List the application of modern methods and instrumental analysis used for colloidal systems.	7-8	Kinetic properties of colloids			
d2	Acquire basis and indicators for evaluating performance of others.					9-10	Electrical properties colloids			
d1	Create effective communication of all kinds.					11	Adsorption of gas-liquid interface			
						12-13	Adsorption of liquid-solid interface			

أسبوع الدراسة

رئيس مجلس القسم العلمي: د. د. وفاء غنيم شوشة

أستاذ المقرر: أ.م.د/ نيفين عبد العاطي خليفة

نموذج رقم ( ١١ ) أ





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" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

The Quality of Basic Sciences is the Assurance for Other Sciences



وحدة ضمان الجودة

Surface and Colloid Chemistry 143632	مسمى المقرر
	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ب) مصفوفة اساليب التقويم مقابل المعارف والمهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية			المعارف الرئيسية		المهارات الذهنية		أساليب التقويم	
d6	Manage a scientific meeting and the ability to manage time.	C3	predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	C1	Estimate the appropriate practical techniques to synthesize stable colloidal systems.	a4.	illustrate the strategies to synthesize and examine the colloidal systems..	a1.	List the application of modern methods and instrumental analysis used for colloidal systems.	Semester work
d5	Work in a team and the leadership of teams.	C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	b2.	Utilize theories of steric stabilization and electrostatic stabilization to overcome the instability of the colloidal systems.	a3.	Relate the advanced principles of the colloidal systems and its properties to the literature of adsorption studies.	a2.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).	
d4	Compare of different sources of information and knowledge.	d1	Create effective communication of all kinds.	b1.	Construct the suitable techniques to stabilize the colloidal systems.	a2.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).	a1.	List the application of modern methods and instrumental analysis used for colloidal systems.	Final written exam
d3	Develop self- assessment and continuous learning.									
d2	Acquire basis and indicators for evaluating performance of others.									
d1	Create effective communication of all kinds.									

رئيس مجلس القسم العلمي: د. د. وفاء غنيم شوشة

أستاذ المقرر: أ.م.د/ نيفين عبد العاطي خليفة

نموذج رقم ( ١١ أ )





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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ ) 2016/2017

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر		
الفرقة / المستوى : تمهيدى ماجستير (ترم اول)	اسم المقرر : Advanced Environmental Analytical Chemistry	الرمز الكودى : ١٤٣٦٣٣
عدد الوحدات الدراسية : 1 نظري		التخصص : كيمياء غير عضوية
Basic Principles of environmental sampling, statistics and analysis of ecological parameters. The course introduces the students to the variety of techniques for microanalysis of pollutant components and range of instrumental analysis applicable. Special emphasis on methods of detecting origin, reactions, distribution, effects and fates of chemicals in the atmosphere, water and soil as well as the concept of setting standards for each media. During the lab period the student is introduced to the fundamentals of analytical chemistry with the stress on environmental applications.		٢- هدف المقرر :
٣- المستهدف من تدريس المقرر :		
<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern methods of instrumental analysis in environmental applications. a2. Find the updates in instruments and instrumental techniques that are recently used in environmental analysis. a3. Extend students skills in literature search engines and the writing of reports (including critical evaluation). a4. illustrate the strategies to manage environmental problems related to industry		أ- المعلومات و المفاهيم :
<b>By the end of the course the graduate is expected to:</b> b1. Construct the suitable search plan to solve industrial related problems. b2. Assume hypothesis through statistical interpretation of experimental data and instrumental analysis. b3. Analyze search results using theories and statistical tests.		ب - المهارات الذهنية :
<b>By the end of the course the graduate is expected to:</b> C1 Solve practical problems related to industry and environmental problems. C2 Estimate the appropriate practical techniques encountered during the project. C3 Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities. C4 Assess their practical reports .		ج - المهارات المهنية الخاصة بالمقرر :
<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Work in a team and the leadership of teams. d6 Manage a scientific meeting and the ability to manage time.		د - المهارات الهامة :
1) Introduction to Environmental Data Acquisition: Environmental Sampling and Environmental Analysis 2) Basics of Environmental Sampling and Analysis and Environmental Sampling Design		٤- محتوى المقرر :



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وحدة ضمان الجودة

3) The Role and Importance of Environmental Analysis Classical Methods 4) Fundamentals of Sample Preparation for Environmental Analysis 5) UV-Visible and Infrared Spectroscopic Methods in Environmental Analysis 6) Atomic Spectroscopy for Metal Analysis 7) Chromatographic Methods for Environmental Analysis 8) Electrochemical Methods for Environmental Analysis 9) Other Instrumental Methods in Environmental Analysis	
- Lectures with or without Data show - Discussion and seminars - Brain storm -self learning.	٥- أساليب التعليم و التعلم
- Office hours are extended after the lecture to attest students in grasping the subject matter. Review sessions are also in order during the final weeks of the term to review subject matter and for assisting special case students (especially those with language problems)	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>Final-Term exam 60 %</li> <li>Semester work + attendance 20 %</li> <li>Midterm exam 20 %</li> </ul> <p>Total 100%</p>	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
لا يوجد	أ- مذكرات
Essential books (text books) Fundamentals of Environmental Sampling and Analysis By: Chunlong Zhang (2007) (e-book)	ب- كتب ملزمة
Other related books <ul style="list-style-type: none"> <li>APHA: Standard Methods for the Analysis of Water and Wastewater</li> <li>APHA: Standard Methods for Air Sampling and Analysis.</li> <li>APHA: Standard Methods for Soil Analysis.</li> <li>Course materials retrieved from the Internet websites for other universities' (pending the availability)</li> </ul>	ج- كتب مقترحة
Chemistry and environmental science as well as university websites	د- دوريات علمية أو نشرات ... إلخ

رئيس مجلس القسم العلمي :  
ا. د / وفاء غنيم شوشة

أستاذ المادة :  
أ م د فريدة محمد سعد الدين الدرس.



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وحدة ضمان الجودة

نموذج رقم (١١ أ)

Advanced Environmental chemistry	مسمى المقرر
143633	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف والمهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المعارف الرئيسية		المحتويات للمقرر		
d6	Manage a scientific meeting and the ability to manage time.	C3	Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	a4.	illustrate the strategies to manage environmental problems related to industry	أسبوع الدراسة	1-2 1) Introduction to Environmental Data Acquisition: Environmental Sampling and Environmental Analysis 3-4 2) Basics of Environmental Sampling and Analysis and Environmental Sampling Design 5 3) The Role and Importance of Environmental Analysis Classical Methods 6 4) Fundamentals of Sample Preparation for Environmental Analysis 7 5) UV-Visible and Infrared Spectroscopic Methods in Environmental Analysis 8 6) Atomic Spectroscopy for Metal Analysis 9-10 7) Chromatographic Methods for Environmental Analysis 11 8) Electrochemical Methods for Environmental Analysis 12-13 9) Other Instrumental Methods in Environmental Analysis	
d5	Work in a team and the leadership of teams.	C2	Estimate the appropriate practical techniques encountered during the project.	b3.	Analyze search results using theories and statistical tests.			1-2
d4	Compare of different sources of information and knowledge.	C1	Solve practical problems related to industry and environmental problems.	b2.	Assume hypothesis through statistical interpretation of experimental data and instrumental analysis.			3-4
d3	Develop self- assessment and continuous learning.	C4	Assess their practical reports .	b1.	Construct the suitable search plan to solve industrial related problems.			5
d2	Acquire basis and indicators for evaluating performance of others.	C3	Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	a4.	illustrate the strategies to manage environmental problems related to industry			6
d1	Create effective communication of all kinds	C2	Estimate the appropriate practical techniques encountered during the project.	a3.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).			7
		C1	Solve practical problems related to industry and environmental problems.	a2.	Find the updates in instruments and instrumental techniques that are recently used in environmental analysis.			8
		C4	Assess their practical reports .	a1.	List the application of modern methods of instrumental analysis in environmental applications.			9-10
		C3	Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.					11
		C2	Estimate the appropriate practical techniques encountered during the project.			12-13		

رئيس مجلس القسم العلمي : ا. د / وفاء غنيم شوشة

أستاذ المادة : أم د فريدة محمد سعد الدين الدرس.





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وحدة ضمان  
الجودة

نموذج رقم (١١أ)

Advanced Environmental chemistry	مسمى المقرر
143633	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف والمهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية		المعارف الرئيسية		أساليب التعليم و التعلم	
d6	Manage a scientific meeting and the ability to manage time.	C4	Assess their practical reports .	b3.	Analyze search results using theories and statistical tests.	a4.	illustrate the strategies to manage environmental problems related to industry	X	Lectures
d5	Work in a team and the leadership of teams.	C3	Predict the risk assessments based on their awareness of Health & Safety issues and legal responsibilities.	b2.	Assume hypothesis through statistical interpretation of experimental data and instrumental analysis.	a3.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).	X	Discussion sessions
d4	Compare of different sources of information and knowledge.	C2	Estimate the appropriate practical techniques encountered during the project.	b1.	Construct the suitable search plan to solve industrial related problems.	a2.	Find the updates in instruments and instrumental techniques that are recently used in environmental analysis.	X	Brain storm
d3	Develop self- assessment and continuous learning.	C1	Solve practical problems related to industry and environmental problems.			a1.	List the application of modern methods of instrumental analysis in environmental applications.	X	self learning.
d2	Acquire basis and indicators for evaluating performance of others.								
d1	Create effective communication of all kinds.								

رئيس مجلس القسم العلمي : ا. د / وفاء غنيم شوشة

أستاذ المادة : أ م د فريدة محمد سعد الدين الدرس.



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وحدة ضمان الجودة

نموذج رقم ( ١٢ ) 2016/2017

Molecular Spectroscopy	مسمى المقرر
143634	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر	
الرمز الكودي : 143634	اسم المقرر : Molecular Spectroscopy
التخصص : Non organic Chemistry	الفرقة / المستوى : premasters- 2 <sup>nd</sup> term
٢- هدف المقرر :	عدد الوحدات الدراسية : 2 نظري
This course aimed to : 1. Theoretical study of different types of spectroscopy (MW, IR and Raman and atomic electronic. 2. , ESR AND NMR spectrometry. 3. Application to biological and chemical studies,	
٣- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern theories of molecular spectroscopy. a2. Find the updates in theories and computer techniques that are used in molecular spectroscopy. a3. Extend students skills in literature search engines and the writing of reports (including critical evaluation). a4. illustrate the strategies to manage problems using spectroscopic techniques.
ب - المهارات الذهنية :	<b>By the end of the course the graduate is expected to:</b> B1 Construct the suitable search plan to solve real life problems using spectroscopic studies. B2 Select the suitable computer programs for statistics and theoretically estimated spectra as well as presentations. B3 Analyze search results using theories and spectroscopic facts.
ج - المهارات المهنية الخاصة بالمقرر :	<b>By the end of the course the graduate is expected to:</b> C1 Solve practical problems using the different spectroscopic techniques.. C2 Design practical protocols within a professional or workplace context. C3 Estimate the appropriate practical techniques to investigate definite structure. C4 Discuss the results of the different spectroscopic studies.
د - المهارات الهامة :	<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Work in a team and the leadership of teams. d6 Manage a scientific meeting and the ability to manage time.
٤- محتوى المقرر :	1- Proton magnetic resonance spectrometry 2-Electron spin spectroscopy 3- Application of molecular spectroscopy to study the rational microwave spectroscopy, vibrational spectroscopy, IR and Raman and electronic spectroscopy





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وحدة ضمان  
الجودة

4- Application to biological and chemical studies, - Lectures using Data show - Discussion sessions -Seminars -Brain storm - self learning.	٥- أساليب التعليم و التعلم
Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة ٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
• Final-Term exam 60 % • Overall course activity evaluation + attendance 20 % • Midterm exam 20 % Total 100%	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
لا يوجد	أ- مذكرات
Essential books (text books)	ب- كتب ملزمة
	ج- كتب مقترحة
- Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ).	د- دوريات علمية أو نشرات إلخ ...

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.م.د/ عادل احمد



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وحدة ضمان الجودة

نموذج رقم (١١)

Molecular Spectroscopy	مسمى المقرر
143634	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية			المهارات الذهنية			المعارف الرئيسية			المحتويات للمقرر					
d6	d5	d4	d3	d2	d1	C4	C3	C2	C1	b3.	b2.	b1.	a4.	a3.		a2.	a1.			
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the results of the different spectroscopic studies	Estimate the appropriate practical techniques to investigate definite	Design practical protocols within a professional or workplace	Solve practical problems using the different spectroscopic techniques	Analyze search results using theories and spectroscopic facts.	Select the suitable computer programs for statistics and theoretically estimated spectra as well as presentations.	Construct the suitable search plan to solve real life problems using spectroscopic studies	illustrate the strategies to manage problems using spectroscopic	Extend students skills in literature search engines and the writing of reports (including critical evaluation).	Find the updates in theories and computer techniques that are used in molecular spectroscopy	List the application of modern theories of molecular spectroscopy	أسبوع الدراسة	المحتويات للمقرر		
						x								X	X	1			Introduction	
						x		x	x	x				X	X	X			2-3	Molecular electronic spectroscopy
						X		X	X	X				X		X			4	Microwave Spect.
						X		X	X	X				X		X			5	IR Spectr.
						X		X	X	X				X		X			6	Raman
						X		X	X	X				X		X			7-8	NMR
						X		X	X	X				X		X			9-10	ESR
x	x	x	x	x	x	X	x	x	x	x	x	x	x	x	X	X	11-12	Some applications		

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عادل احمد



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وحدة ضمان الجودة

نموذج رقم (١١)

Molecular Spectroscopy	مسمى المقرر
143634	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية		المعارف الرئيسية		أساليب التقويم		
d6	Manage a scientific meeting and the ability to manage time.	C4	Discuss the results of the different spectroscopic studies	b3.	Analyze search results using theories and spectroscopic facts.	b1.	Construct the suitable search plan to solve real life problems using spectroscopic studies	Semester work	midterm	
d5	Work in a team and the leadership of teams.	C3	Estimate the appropriate practical techniques to investigate definite structure.	b2.	B2. Select the suitable computer programs for statistics and theoretically estimated spectra as well as presentations.	a4.	illustrate the strategies to manage problems using spectroscopic techniques.			
d4	Compare of different sources of information and knowledge.	C2	Design practical protocols within a professional or workplace context.	b1.	Construct the suitable search plan to solve real life problems using spectroscopic studies	a3.	Extend students skills in literature search engines and the writing of reports (including critical evaluation).			Final written exam
d3	Develop self- assessment and continuous learning.	C1	Solve practical problems using the different spectroscopic techniques	a2.	Find the updates in theories and computer techniques that are used in molecular spectroscopy	a1.	List the application of modern theories of molecular spectroscopy			
d2	Acquire basis and indicators for evaluating performance of others.									
d1	Create effective communication of all kinds.									

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عادل احمد





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" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

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وحدة ضمان الجودة

نموذج رقم ( ١٢ ) 2016/2017

Advanced Techniques in electrochemistry	مسمى المقرر
١٤٣٦٣٥	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر	
الرمز الكودي : ١٤٣٦٣٥	اسم المقرر : Advanced Techniques in electrochemistry
التخصص : Non organic Chemistry	الفرقة / المستوى : Premasters- 1 <sup>st</sup> semester
٢- هدف المقرر :	عدد الوحدات الدراسية : 2 نظري
٣- المستهدف من تدريس المقرر :	
<p><b>By the end of the course the graduate is expected to:</b></p> <p>a1. List the various techniques in electrochemistry</p> <p>a2. Extend student s skills in experimental work.</p> <p>a3. Relate the advanced techniques of the subject matter to the literature of electrochemistry classical methods</p> <p>a4. Illustrate the strategies to manage electrochemistry experimental problems in new or unfamiliar solutions.</p>	
أ- المعلومات و المفاهيم :	
<p><b>By the end of the course the graduate is expected to:</b></p> <p>b1. Utilize advanced techniques to overcome complex problems of a familiar and unfamiliar nature.</p> <p>b2. Assume reasonable interpretation of experimental data</p> <p>b3. Select the suitable computational software for statistics and graphs as well as presentations.</p>	
ب - المهارات الذهنية :	
<p><b>By the end of the course the graduate is expected to:</b></p> <p>C1 Solve experimental l problems.</p> <p>C2 Discuss the advanced techniques and concepts for the scientific basis for understanding their experimental data and the outcomes of the project.</p>	
ج - المهارات المهنية الخاصة بالمقرر :	
<p>d1 Create effective communication of all kinds.</p> <p>d2 Acquire basis and indicators for evaluating performance of others.</p> <p>d3 Develop self- assessment and continuous learning.</p> <p>d4 Compare of different sources of information and knowledge.</p> <p>d5 Work in a team and the leadership of teams.</p> <p>d6 Manage a scientific meeting and experimental work suggestions to manage the time.</p>	
د - المهارات العامة :	
<p>-An introduction to electrochemistry.</p> <p>-Application of EIS in determination the rate of oxide film dissolution.</p> <p>-Applications of EIS to determine the atmospheric corrosion rate of metals.</p> <p>-Assesment of corrosion inhibiton efficiency ofinhbitor using EIS techniques.</p> <p>-Evaluation of water uptake and anticorrosive performance of orgaicating materials.</p> <p>-Determination of corrosion rate using EQCM.</p>	
٤- محتوى المقرر :	
<p>- Lectures</p> <p>- Discussion sessions</p>	
٥- اساليب التعليم و التعلم	



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-Solving experimental problems sessions to gain -practical skills - Brain storm. - cooperative learning.	
Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة ٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations,quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work Week ... dexperimental uring the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>Final-Term exam 60 %</li> <li>Overall semester work + attendance 20 %</li> <li>Midterm exam 20 %</li> </ul> <p>Total 100%</p>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
	أ- مذكرات لا يوجد
-Electrochemical Impedance Spectroscopy and its applications- Lasia, Andrzej ISBN 978-1-4614-8933-7	ب- كتب ملزمة
Electrochemical Impedance Spectroscopy- Mark E. Orazem, Bernard Tribollet- ISBN: 978-0-470-04140-6	ج- كتب مقترحة
- Corrosion Science-Electrochimica Acta- Journal of applied electrochemistry.	د- دوريات علمية أو نشرات إلخ ...

رئيس مجلس القسم العلمي: أ.د/ د /وفاء غنيم شوشة

أستاذ المقرر: أ.د/ جمال احمد محمد المهدي



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وحدة ضمان الجودة

نموذج رقم (١١أ)

Advanced techniques in electrochemistry	مسمى المقرر
١٤٣٦٣٥	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية		المهارات الذهنية			المعارف الرئيسية			المحتويات للمقرر					
d6	d5	d4	d3	d2	d1	C2	C1	b3	b2	b1	a4	a3	a2		a1				
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced techniques and concepts for the scientific basis for understanding their experimental data and the outcomes of the project.	Solve experimental   problems.	Select the suitable computational software for statistics and graphs as well as presentations.	Assume reasonable interpretation of experimental data.	Utilize advanced techniques to overcome complex problems of a familiar and unfamiliar nature.	Illustrate the strategies to manage electrochemistry experimental problems in new or unfamiliar solutions.	Relate the advanced techniques of the subject matter to the literature of electrochemistry classical methods.	Extend student's skills in experimental work.	List the various techniques in electrochemistry	أسبوع الدراسة	1-2	An introduction to electrochemistry		
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				3-5	Application of EIS in determination the rate of oxide film dissolution.
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				6-7	Applications of EIS to determine the atmospheric corrosion rate of metals
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				8-9	Assesment of corrosion inhibitor using EIS efficiency of techniques.
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				10-11	Evaluation of water uptake and anticorrosive performance of organic materials
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				12	Determination of corrosion rate using EQCM.

رئيس مجلس القسم العلمي: أ.د/ د. وفاء غنيم شوشة

أستاذ المقرر: أ.د/ جمال أحمد محمد المهدي



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وحدة ضمان الجودة

نموذج رقم (١١أ)

Advanced techniques in electrochemistry	مسمى المقرر
١٤٣٦٣٥	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية		المهارات الذهنية			المعارف الرئيسية				أساليب التقويم
d6	d5	d4	d3	d2	d1	C2	C1	b3.	b2.	b1.	a4.	a3.	a2.	a1.	
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others	Create effective communication of all kinds.	Discuss the advanced techniques and concepts for the scientific basis for understanding their experimental data and the outcomes of the	Solve experimental   problems.	Select the suitable computational software for statistics and graphs as well as presentations.	Assume reasonable interpretation of experimental data	Utilize advanced techniques to overcome complex problems of a familiar and unfamiliar nature.	Illustrate the strategies to manage electrochemistry experimental problems in new or unfamiliar solutions.	Relate the advanced techniques of the subject matter to the literature of electrochemistry	Extend student s skills in experimental work.	List the various techniques in electrochemistry	
X	X	X	X	X	X	X									Semester work
						X	X	X	X	X	X	X	X	X	Midterm exam.
						X	X	X	X	X	X	X	X	X	Final written exam

رئيس مجلس القسم العلمي: أ.د/ ا. د /وفاء غنيم شوشة

أستاذ المقرر: ا.د/ جمال أحمد محمد المهدي







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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر		
الفرقة / المستوى : Premasters- 1 <sup>st</sup> semester	اسم المقرر : Inorganic reaction mechanism	الرمز الكودي : 143636
عدد الوحدات الدراسية : 2 نظري		التخصص : Non organic Chemistry
<p>-To give the student an insight into a range of research activities in the field of inorganic reaction mechanism.</p> <p>- Techniques and chemical skills as well as to widen their knowledge both of the subject itself and the context within which the research will take place.</p> <p>- It will provide the student with an understanding the way in which the scientific research is managed.</p>		٢- هدف المقرر :
- المستهدف من تدريس المقرر :		
<p><b>By the end of the course the graduate is expected to:</b></p> <p>a1. List the application of modern methods of instrumental analysis that will prepare the student for contemporary professional practice.</p> <p>a2. Describe the updates in instruments and instrumental techniques that are of contemporary importance in the chemical sciences.</p> <p>a3. Extend students skills in literature search engines.</p> <p>a4. Illustrate the strategies to manage problems in new or unfamiliar contexts.</p>		أ- المعلومات و المفاهيم :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>b1. Utilize theories to overcome complex problems of a familiar and unfamiliar nature.</p> <p>b2. Assume hypothesis through statistical interpretation of experimental data. Analysis of search results using theories and statistical tests.</p> <p>b3. Select the suitable computational programs for statistics and graphs as well as presentations.</p>		ب - المهارات الذهنية :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>C1 Solve practical problems.</p> <p>C2 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.</p>		ج - المهارات المهنية الخاصة بالمقرر :
<p>d1 Create effective communication of all kinds.</p> <p>d2 Acquire basis and indicators for evaluating performance of others.</p> <p>d3 Develop self- assessment and continuous learning.</p> <p>d4 Compare of different sources of information and knowledge.</p> <p>d5 Work in a team and the leadership of teams.</p> <p>d6 Manage a scientific meeting and the ability to manage time.</p>		د - المهارات العامة :
<p>- Reaction mechanism of substitution reaction.</p> <p>- The general mechanism of square planar substitution complexes Pt (II) and</p>		٤- محتوى المقرر :



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- other d metal ions. - Substitution of octahedral complexes. - Replacement of coordinated water solvolysis. - Electron transfer reactions. - Synthesis of coordination compounds using electron transfer reactions. - Molecular rearrangements and reactions of coordinated ligands.	
- Lectures - Discussion sessions - Brain storm. - Cooperative learning.	٥- أساليب التعليم و التعلم
Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work Week ... during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"><li>Final-Term exam 60%</li><li>Overall course activity evaluation + attendance 20%</li><li>Midterm exam 20%</li><li>Total 100%</li></ul>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
	أ- مذكرات لا يوجد
- Inorganic Reaction Mechanisms, Part 11, John O. Edwards, John Wiley & Sons, Inc., New York, 1972.	ب- كتب ملزمة
- Inorganic Chemistry, James E. House, Academic, Elsevier, UK, 2008.	ج- كتب مقترحة
- Journal of Molecular Structure, - Spectrochimia Acta Part A, - Chemical Papers, - European Journal of Inorganic Chemistry, - Inorganica Chimica Acta, - All published by Elsevier.	د- دوريات علمية أو نشرات ... الخ

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أستاذ المقرر: د / سمير أبو القاسم عبد اللطيف



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وحدة ضمان الجودة

نموذج رقم (١١) (أ)

Inorganic reaction mechanism	مسمى المقرر
143636	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية	المهارات الذهنية	المعارف الرئيسية	المحتويات للمقرر																							
d6	Manage a scientific meeting and the ability to manage time.	d5	Work in a team and the leadership of teams.	d4	Compare of different sources of information and knowledge.	d3	Develop self- assessment and continuous learning.	d2	Acquire basis and indicators for evaluating performance of others.	d1	Create effective communication of all kinds.	C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	C1	Solve experimental I problems.	b3.	Select the suitable computational programs for statistics and graphs as well as presentations.	b2.	Assume hypothesis through statistical interpretation of experimental data. Analysis of	b1.	Utilize theories to overcome complex problems of a familiar and unfamiliar nature.	a4.	Illustrate the strategies to manage problems in new or unfamiliar contexts.	a3.	Extend students skills in literature search engines.	a2.	Describe the updates in instruments and instrumental techniques that are of contemporary importance in the chemical sciences.	a1.	List the application of modern methods of instrumental analysis that will prepare the student for contemporary professional practice.	أسبوع الدراسة		
			x			x		x		x																					1-2	Reaction mechanism of substitution reaction.
			x			x		x																							3-5	The general mechanism of square planar substitution complexes Pt (II) and other d metal ions.
						x		x																							6	Substitution of octahedral complexes.
						x		x																							7-8	Replacement of coordinated water solvolysis
			x			x		x																							9-10	Electron transfer reactions.
			x			x		x																							11	Synthesis of coordination compounds using electron transfer reactions.
			x			x		x																							12	Molecular rearrangements and reactions of coordinated ligands.

رئيس مجلس القسم العلمي: أ. د/ وفاء غنيم شوشة

أستاذ المقرر: د/ سمير أبو القاسم عبد اللطيف





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وحدة ضمان الجودة

نموذج رقم (١١)

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

Inorganic reaction mechanism	مسمى المقرر
143636	كود المقرر

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية		المعارف الرئيسية		أساليب التعليم و التعلم																						
d6	Manage a scientific meeting and the ability to manage time.	d5	Work in a team and the leadership of teams.	d4	Compare of different sources of information and knowledge.	d3	Develop self- assessment and continuous learning.	d2	Acquire basis and indicators for evaluating performance of others.	d1	Create effective communication of all kinds.	C2	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	C1	Solve experimental I problems.	b3.	Select the suitable computational programs for statistics and graphs as well as presentations.	b2.	Assume hypothesis through statistical interpretation of	b1.	Utilize theories to overcome complex problems of a familiar and unfamiliar nature.	a4.	Illustrate the strategies to manage problems in new or unfamiliar contexts.	a3.	Extend students skills in literature search engines.	a2.	Describe the updates in instruments and instrumental techniques that are of contemporary importance in the chemical sciences	a1.	List the application of modern methods of instrumental analysis that will prepare the student for contemporary professional practice.	Lectures
		X	X			X	X					X	X			X	X			X	X	X	X	X	X	X	X	X	Discussion sessions	
					X	X	X	X				X	X	X							X	X	X	X	X	X	X	X	Brain storm.	
X			X		X							X	X								X			X	X	X	X	X	Cooperative learning	

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نموذج رقم (١٢)

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

بيانات المقرر	
الرمز الكودي : 143637	اسم المقرر : <b>Photochemistry</b>
التخصص : <b>Non organic Chemistry</b>	الفرقة / المستوى : premasters- 2 <sup>nd</sup> term عدد الوحدات الدراسية : 2 نظري
٢- هدف المقرر :	1- To offer the knowledge and facts, concepts, basics and theoretical principles of Photochemistry. 2- To spot on the different states of both atoms and molecules and their energies. energy levels, absorption and emission of light, spin conservation rules, 3- To provide skills about the theoretical methods applied for interpreting and analyzing the spectral data and use it in different areas of chemistry. 4- To develop knowledge about different types of photochemical reactions .
٣- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern concepts and methods of photochemistry. a2. Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical evaluation). a3. Relate the advanced principles of the photochemistry to the literature of physical chemical analysis methods. a4. Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.
ب - المهارات الذهنية :	<b>By the end of the course the graduate is expected to:</b> b1. Utilize theories on UV spectral data for different photochemical applications. b2. Assume hypothesis through statistical interpretation of experimental data. b3. Analyze the spectral data using theories and statistical tests b4. Select the suitable computer programs for statistics and graphs as well as presentations.
ج - المهارات المهنية الخاصة بالمقرر :	<b>By the end of the course the graduate is expected to:</b> C1 Solve practical problems based on photochemistry. C2 Design analytical protocols within a professional or workplace context. C3 Estimate the appropriate practical techniques to identify problems during the experimental work. C4 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the spectral data.



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<p><b>By the end of the course the graduate is expected to:</b></p> <p>d1 Create effective communication of all kinds.  d2 Acquire basis and indicators for evaluating performance of others.  d3 Develop self- assessment and continuous learning.  d4 Compare of different sources of information and knowledge.  d5 Work in a team and the leadership of teams.  d6 Manage a scientific meeting and the ability to manage time.</p>	د - المهارات الهامة :
<p>1- Introduction -quantization of energy of light and material  -Absorption and emission - spectroscopy and singlet and triplet states  2-molecular electronic spectroscopy Theoretical principles -Molecular orbitals (types and energies) -excited electronic states -Fating of electronically excited species  3- Photoelectric effect -Fluorescence and phosphorescence  -intersystem crossing --Quenching and quantum yield calculations  4-Different types of Photochemical reactions  5-kinetics of the photochemical reactions.</p>	٤- محتوى المقرر :
<p>Lectures  Seminars  Open discussion sessions  Brain storm  Self-learning</p>	٥- أساليب التعليم و التعلم
<p>Office hours.</p>	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
<p>-Semester work ( oral exam, reports, presentations, quiz, assignments)  -Mid-Term exam  -Final-Term exam</p>	أ- الأساليب المستخدمة
<p>Assessment 1 semester work during the entire course.  Assessment 2 ... Mid-Term exam Week .....9.....  Assessment 3..... Final exam Week : to be decided by general exam</p>	ب - التوقيت
<p>• Final-Term exam 60 %  • Overall course activity evaluation + attendance 20 %  • Midterm exam 20 %  Total 100%</p>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
لا يوجد	أ- مذكرات
Essential books (text books)	ب- كتب ملزمة
	ج- كتب مقترحة
- Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ).	د- دوريات علمية أو نشرات ... إلخ

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أستاذ المقرر: ا.م.د/ عادل احمد





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وحدة ضمان الجودة

نموذج رقم (١١) أ

Photochemistry	مسمى المقرر
143637	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية			المهارات الذهنية			المعارف الرئيسية			المحتويات للمقرر				
d6	d5	d4	d3	d2	d1	C4	C3	C2	C1	b4	b3	b2	b1	a4		a3	a2	a1	
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the spectral data.	Estimate the appropriate practical techniques to identify	Design analytical protocols within a professional or	Select the suitable computer programs for statistics and graphs	Analyze the spectral data using theories and statistical tests	Assume hypothesis through statistical interpretation of	Utilize theories on UV spectral data for different photochemical applications.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	Relate the advanced principles of the photochemistry to the literature of physical chemical analysis methods.	Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical	List the application of modern concepts and methods of photochemistry.			
						x				X	X		x		X		X	1-3	Introduction -quantization of energy of light and material -Absorption and emission - spectroscopy and singlet and triplet states
								x		x	X		x		X	X		4-7	2-molecular electronic spectroscopy Theoretical principles -Molecular orbitals (types and energies) -excited electronic states - Fating of electronically excited species
							x			X	X				x	x	x	8-9	3- Photoelectric effect - Fluorescence and phosphorescence -intersystem crossing -- Quenching and quantum yield calculations
X	x	x	x	x	x		x	x	x		x	x		x			x	10-12	Some applications

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أستاذ المقرر: أ.د/ عادل احمد



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وحدة ضمان الجودة

نموذج رقم (١١)

Photochemistry	مسمى المقرر
143637	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية			المهارات الذهنية				المعارف الرئيسية			أساليب التقويم
d6	Manage a scientific meeting and the ability to manage time.	C4	Discuss the advanced theories and concepts for the	b4.	Select the suitable computer programs for statistics and	a4.	Show the ethical and social responsibilities of the professional analyst which includes professional	a3.	Relate the advanced principles of the photochemistry to the literature of physical chemical analysis methods.	a1.	List the application of modern concepts and methods of photochemistry.	Semester work
d5	Work in a team and the leadership of teams.	C3	Estimate the appropriate practical techniques to identify	b3.	Analyze the spectral data using theories and statistical	a2.	Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical evaluation).					Midterm exam.
d4	Compare of different sources of information and knowledge	C2	Discuss the evolution of photochemistry as a scientific discipline	b2.	Assume hypothesis through statistical interpretation of	a1.	List the application of modern concepts and methods of photochemistry.					Final written exam
d3	Develop self- assessment and continuous learning.	C1	Solve practical problems based on photochemistry.	b1.	Utilize theories on UV spectral data for different							
d2	Acquire basis and indicators for evaluating performance of others											
d1	Create effective communication of all kinds.											

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عادل احمد



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" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

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وحدة ضمان الجودة

نموذج رقم (١١)

Photochemistry	مسمى المقرر
143637	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة						مهارات مهنية				المهارات الذهنية				المعارف الرئيسية				أساليب التعليم و التعلم
d6	d5	d4	d3	d2	d1	C4	C3	C2	C1	b4	b3	b2	b1	a4	a3	a2	a1	
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams	Compare of different sources of information and knowledge	Develop self- assessment and continuous learning	Acquire basis and indicators for evaluating performance of others	Create effective communication of all kinds	Discuss the advanced theories and	Estimate the appropriate practical	Design analytical protocols within a	Solve practical problems based on	Select the suitable computer programs for	Analyze the spectral data using theories	Assume hypothesis through statistical	Utilize theories on UV spectral data for	Show the ethical and social responsibilities of the professional analyst which includes	Relate the advanced principles of the photochemistry to the literature of physical chemical analysis methods.	Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical	List the application of modern concepts and methods of photochemistry.	
						X	X	X	X	X	X	X	X	X	X	X	X	Lectures
						X	X	X	X									Discussion sessions
X	X	X	X	X	X									X	X	X	X	seminars
						X	X	X	X	X	X	X	X	X	X	X	X	Brain storm.
X	X	X	X	X	X													Self learning

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عادل احمد



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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

جامعة حلوان  
كلية العلوم  
قسم الكيمياء

توصيف مقرر دراسي 2016/2017

بيانات المقرر	
الفرقة / المستوي: Premasters - 2 <sup>nd</sup> term	اسم المقرر: Electrochemical methods of analysis
عدد الوحدات الدراسية: نظري ( 2 )	الرمز الكودي 143638 : التخصص: Non organic Chemistry
2- هدف المقرر : The course aims to provide students with general theoretical basis of electrochemical I analysismethods as potentiometry and potentiometric titrations and some details on voltametry and polargraphy to complement their scientific knowledge.	
3- المستهدف من تدريس المقرر : أ- المعلومات والمفاهيم :	
a1. List the application of modern instruments for electrochemical analytical studies. a2. Illustrate the strategies to find out information using electrochemical analysis methods. a3. Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	ب- المهارات الذهنية :
b1. Construct the suitable search plan to solve industrial problems using electrochemical analytical methods and techniques.. b2. Assume hypothesis through statistical interpretation of experimental data. b3. Analyze search results based on theoretical studies of electrochemical analytical chemistry. b4. Select the suitable computer programs for statistics and graphs as well as presentations.	ج- المهارات المهنية الخاصة بالمقرر :
C1 Estimate the appropriate practical techniques to illustrate information about the system under investigations. C2 Assess their practical reports.	د - المهارات العامة :
d1 Create effective communication of all kinds. d2 Develop self- assessment and continuous learning. d3 Work in a team and the leadership of teams. d4 Manage a scientific meeting and the ability to manage time.	٤- محتوى المقرر :
1- Standard operating conditions for instruments 2- Quality assurance, equipment and materials 3- Making measurements and reporting 4- Techniques of column and plane chromatography 5- Chromatographic theory 6- High Performance Liquid Chromatography 7- Gas Chromatography 8- Electrophoresis	٥- أساليب التعليم والتعلم
Open discussions Lectures group learning brain storm class presentations	



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وحدة ضمان  
الجودة

Office hours.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة ٧- تفويم الطلاب :
-Semester work ( oral exam, reports, presentations,quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3 ..... Final exam Week : to be decided by general exam	ب- التوقيت
<ul style="list-style-type: none"><li>• Mid-Term exam % 20</li><li>• Final-Term exam % 60</li><li>• Oral exam % 10</li><li>• Semester Work % 10</li></ul> Total 100%	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية والمراجع :	
	أ- مذكرات
R.A. Day A . L . Underwood Jr, Quantitative Analysis, Latest edition	ب- كتب ملزمة
D A. Skoog, Prinicple of Instrumental Analysis, Latest Edition.	ج- كتب مقترحة
	د- دوريات علمية أو نشرات ... الخ

رئيس مجلس القسم العلمي : أ.د/ وفاء غنيم شوشة

أستاذ المادة : / أ.د/ مديحة حسن



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وحدة ضمان الجودة

نموذج رقم (١١) أ

Electrochemical methods of analysis	مسمى المقرر
143638 E	كود المقرر

جامعة : حلوان

كلية : العلوم

قسم : الكيمياء

أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة				مهارات مهنية	المهارات الذهنية				المعارف الرئيسية			المحتويات للمقرر		
d4	d3	d2	d1	C4	C3	b4.	b3.	b2.	b1.	a3.	a2.		a1.	
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Develop self- assessment and continuous learning.	Create effective communication of all kinds.	Assess their practical reports .	Estimate the appropriate practical techniques to illustrate informations about the system under investigations.	Select the suitable computer programs for statistics and graphs as well as presentations.	Analyze search results based on theoretical studies of electrochemical analytical chemistry.	Assume hypothesis through statistical interpretation of experimental data.	Construct the suitable search plan to solve industrial	Show the ethical and social responsibilities of the professional analyst which includes professional adherence	illustrate the strategies to find out information using electrochemical analysis methods.	List the application of modern instruments for electrochemical analytical studies.	أسبوع الدراسة	
										X			٢-١	Standard operating conditions for instruments
										X			٣	Quality assurance, equipment and materials
X				X		X			X				٤	Making measurements and reporting
												X	٧-٥	Techniques of column and plane chromatography
			X										٩-٨	Chromatographic theory
					X		X						١٠	High Performance Liquid Chromatography
	X							X					١١	Gas Chromatography
		X											١٢	Electrophoresis

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أستاذ المقرر: أ.د/ مديحة حسن



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وحدة ضمان الجودة

نموذج رقم (١١)

Electrochemical methods of analysis	مسمى المقرر
143638 E	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التقويم المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية		المعارف الرئيسية		أساليب التقويم	
d4	Manage a scientific meeting and the ability to manage time.	C2	Assess their practical reports .	b4.	Select the suitable computer programs for statistics and graphs as well as presentations.	a3.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of	Semester work	X
d3	Work in a team and the leadership of teams.	C1	Estimate the appropriate practical techniques to illustrate informations about the system under investigations.	b3.	Analyze search results based on theoretical studies of electrochemical analytical chemistry.	a2.	illustrate the strategies to find out information using electrochemical analysis methods.		
d2	Develop self- assessment and continuous learning.			b2.	Assume hypothesis through statistical interpretation of experimental data.	a1.	List the application of modern instruments for electrochemical analytical studies.		
d1	Create effective communication of all kinds.			b1.	Construct the suitable search plan to solve industrial problems using			Midterm exam	X
		X	X			X	X	Final written exam	X

أستاذ

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

المقرر: أ.د/ مديحة حسن



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وحدة ضمان الجودة

نموذج رقم (١١)

Electrochemical methods of analysis	مسمى المقرر
143638 E	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المعارف الرئيسية		المهارات الذهنية		أساليب التعليم و التعلم	
d4	Manage a scientific meeting and the ability to manage time.	C2	Assess their practical reports .	a3.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	b4.	Select the suitable computer programs for statistics and graphs as well as presentations.	a2.	illustrate the strategies to find out information using electrochemical analysis methods.
d3	Work in a team and the leadership of teams.	C1	Estimate the appropriate practical techniques to illustrate informations about the system under investigations.	a1.	List the application of modern instruments for electrochemical analytical studies.	b3.	Analyze search results based on theoretical studies of electrochemical analytical chemistry.	X	Lecture
d2	Develop self- assessment and continuous learning.					b2.	Assume hypothesis through statistical interpretation of experimental data.	X	Open discussion
d1	Create effective communication of all kinds.					b1.	Construct the suitable search plan to solve industrial problems using electrochemical analytical methods and techniques.	X	Brain storm
								X	Group learning
								X	presentation

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ مديحة حسن





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وحدة ضمان الجودة

نموذج رقم (١٢)

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

1- بيانات المقرر	
الرمز الكودي : 143639	اسم المقرر : <b>Group theory</b>
التخصص : <b>Non organic chemistry</b>	الفرقة / المستوى : premasters- 2 <sup>nd</sup> term عدد الوحدات الدراسية : 2 نظري
2- هدف المقرر :	1- To offer the knowledge and facts, concepts, basics and theoretical principles of group theory. 2- To spot on the different types of group theory systems. 3-To provide skills about the characterization techniques of molecular structure. activation analysis.
3- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern some spectroscopic methods. a2. Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical evaluation). a3. Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.
ب - المهارات الذهنية :	<b>By the end of the course the graduate is expected to:</b> b1. Utilize solid state IR and Raman spectroscopy to identify structure. b2. Assume hypothesis through interpretation of experimental data. b3. Select the suitable computer programs for statistics and graphs as well as presentations.
ج - المهارات المهنية الخاصة بالمقرر :	<b>By the end of the course the graduate is expected to:</b> C1 Solve practical problems based on chemical structure. C2 Design analytical protocols within a professional or workplace context.
د - المهارات الهامة :	<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Work in a team and the leadership of teams.
4- محتوى المقرر :	Chemical Application of group theory Sym. Point group Application to chemical structure problems Matrix representation of groups. The character table Application to molecular structure Infrared spectroscopy Ramon spectroscopy Application to bonding $\sigma$ , $\pi$ - bonding
5- اساليب التعليم و التعلم	Lectures Seminars



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وحدة ضمان الجودة

Open discussion sessions Brain storm Self-learning	
Office hours	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>• Final-Term exam 60 %</li> <li>• Overall course activity evaluation + attendance 20 %</li> <li>• Midterm exam 20 %</li> <li>Total 100%</li> </ul>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
	أ- مذكرات لا يوجد
Course notes Handouts are given to the students - K.C. Molloy, Group Theory for Chemists, Second Edition: Fundamental Theory and Applications, 2010. -f.A. Cotlon, chemical Application of Group theory.	ب- كتب ملزمة
<i>Essential books (text books)</i> <i>Recommended books Inorganic chemistry</i>	ج- كتب مقترحة
Analytical chem., Analytical chemical acta, Science direct - Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ). - Periodicals, web sites, .. etc Science direct	د- دوريات علمية أو نشرات الخ ...

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أستاذ المقرر: أ.د/ عبد الحكيم قنديل



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وحدة ضمان الجودة

نموذج رقم (١١) (أ)

Group theory	مسمى المقرر
١٤٣٦٣٩	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية			المعارف الرئيسية		المحتويات للمقرر						
d4	Work in a team and the leadership of teams.	C2	Design analytical protocols within a professional or workplace context.	b3.	Select the suitable computer programs for statistics and graphs as well as presentations.	b2.	Assume hypothesis through interpretation of experimental data.	a3.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	a2.	Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical evaluation)	a1.	List the application of modern some spectroscopic methods.	أسبوع الدراسة	
					X			X		X				1-3	Chemical applications of group theory sym.
	X	X								X				4-7	Point group Application to chemical structure problems
	X		X	X										8-9	Matrix representation of groups & the character table
		X	X	X	X	X	X	X	X	X	X	X		10-11	Application to molecular structure
X			X		X	X								12	Infrared spectroscopy Ramon spectroscopy Application to bonding $\sigma$ , $\pi$ - bonding

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ عبد الحكيم قنديل



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وحدة ضمان  
الجودة

نموذج رقم (١١)

Group theory	مسمى المقرر
١٤٣٦٣٩	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

أساليب التقويم											
معارف الرئسية				المهارات الذهنية			مهارات مهنية		مهارات عامة		
d4	Work in a team and the leadership of teams.										
d3	Develop self- assessment and continuous learning.										
d2	Acquire basis and indicators for evaluating performance of others.										
d1	Create effective communication of all kinds.										
C2	Design analytical protocols within a professional or workplace context.										
C1	Solve practical problems based on chemical structure.										
b3.	Select the suitable computer programs for statistics and graphs as well as presentations.										
b2.	Assume hypothesis through interpretation of experimental data.										
b1.	Utilize solid state IR and Raman spectroscopy to identify structure										
a3.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.										
a2.	Extend students skills in literature search engines; the oral presentation and the writing of reports (including critical evaluation)										
a1.	List the application of modern some spectroscopic methods.										
											Semester work
											Midterm exam
											Final written exam

رئيس مجلس القسم العلمي: أ.د./ وفاء غنيم شوشة

أستاذ المقرر: أ.د./ عبد الحكيم قنديل



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وحدة ضمان الجودة

نموذج رقم (١١)

Group theory	مسمى المقرر
١٤٣٦٣٩	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة				مهارات مهنية		المهارات الذهنية			المعارف الرئيسية			أساليب التعليم و التعلم													
d4	Work in a team and the leadership of teams.	d3	Develop self- assessment and continuous learning	d2	Acquire basis and indicators for evaluating performance of others.	d1	Create effective communication of all kinds.	C2	Design analytical protocols within a professional or workplace context.	C1	Solve practical problems based on chemical structure	b3.	Select the suitable computer programs for statistics and graphs as well as presentations.	b2.	Assume hypothesis through interpretation of experimental data.	b1.	Utilize solid state IR and Raman spectroscopy to identify structure	a3.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable	a2.	Extend students skills in literature search engines; the oral presentation and the writing of	a1.	List the application of modern some spectroscopic methods.		
				X	X	X		X	X	X														Lectures	
X	X	X	X	X	X	X	X	X	X										X						Seminars
X	X	X	X	X	X	X	X	X	X																Open discussion sessions
				X	X	X	X	X	X	X	X	X	X	X											Brain storm
X	X			X				X																	Self-learning

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أستاذ المقرر: أ.د/ عبد الحكيم قنديل

نموذج رقم (١٢)

جامعة: حلوان



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وحدة ضمان  
الجودة

كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر		
الرمز الكودي : ١٤٣٦٤٠	اسم المقرر : <b>Solid state Chemistry</b>	الفرقة / المستوى : premasters- 2 <sup>nd</sup> term
التخصص : <b>Non organic Chemistry</b>	عدد الوحدات الدراسية : 2	نظري
٢- هدف المقرر :	1-To offer the knowledge and facts, concepts, basics and theoretical principles of crystal structure of solids. 2- To spot on the different types of crystal, diffusion in solids and Imperfections in solids 3- To provide skills about the characterization techniques of solid materials 4- To develop knowledge about surface chemistry of solids..	
٣- المستهدف من تدريس المقرر :		
أ- المعلومات و المفاهيم :	<b>By the end of the course the graduate is expected to:</b> a1. List the application of modern methods for characterization of solids. a2. Relate the advanced principles of the solid state chemistry to the literature of physical analysis methods.	
ب - المهارات الذهنية :	<b>By the end of the course the graduate is expected to:</b> b1. Utilize solid state characterizations methods to identify crystal structure. b2. Assume hypothesis through interpretation of experimental data. b3. Analyze the surface of solid using theories and statistical tests	
ج - المهارات المهنية الخاصة بالمقرر :	<b>By the end of the course the graduate is expected to:</b> C1 Solve practical problems based on solid state chemistry. C2 Design analytical protocols within a professional or workplace context. C3 Estimate the appropriate practical techniques to identify problems during the experimental work. C4 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the characterization techniques.	
د - المهارات الهامة :	<b>By the end of the course the graduate is expected to:</b> d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Manage a scientific meeting and the ability to manage time.	
٤- محتوى المقرر :	Electronic structure of solids Crystal systems, Solid Structural characterization Imperfections in solids, Diffusion in solids, Properties of solids materials, Phase transition, Characterization technique for solid materials, Surface chemistry of solids	



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وحدة ضمان  
الجودة

Lectures Seminars Open discussion sessions Brain storm Self-learning	٥- أساليب التعليم و التعلم
Office hours.	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>• Final-Term exam 60 %</li> <li>• Overall course activity evaluation + attendance 20 %</li> <li>• Midterm exam 20 %</li> <li>Total 100%</li> </ul>	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
لا يوجد	أ- مذكرات
Essential books (text books)	ب- كتب ملزمة
	ج- كتب مقترحة
- Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ).	د- دوريات علمية أو نشرات إلخ ...

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ هناء غراب



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" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

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وحدة ضمان الجودة

نموذج رقم (١١) (أ)

Solid state chemistry	مسمى المقرر
١٤٣٦٤٠	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية					المهارات الذهنية			المعارف الرئيسية		المحتويات للمقرر
d5	d4	d3	d2	d1	C4	C3	C2	C1	b3.	b2.	b1.	a2.	a1.	أسبوع الدراسة	
Manage a scientific meeting and the ability to manage time.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the	Estimate the appropriate practical techniques to identify problems during the experimental work.	Design analytical protocols within a professional or workplace context	Solve practical problems based on solid state chemistry.	Analyze the surface of solid using theories and statistical tests	Assume hypothesis through interpretation of experimental data.	Utilize solid state characterizations methods to identify crystal structure	Relate the advanced principles of the solid state chemistry to the literature of physical analysis methods.	List the application of modern methods for characterization of solids	1-3	Electronic structure of solids Crystal systems
				X						X				4-7	Solid Structural characterization Imperfections in solids و Diffusion in solids
X		X		X						X				8-9	Properties of solids materials, Phase transition
X	X				X			X	X		X	X	X	10-11	Characterization technique for solid materials,
X		X	X	X		X	X		X		X			12	Surface chemistry of solids





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وحدة ضمان الجودة

نموذج رقم (١١)

Solid state chemistry	مسمى المقرر
١٤٣٦٤٠	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة	مهارات مهنية				المعارف الرئيسية	أساليب التقويم
	المهارات الذهنية					
d5 Manage a scientific meeting and the ability to manage time.						
d4 Compare of different sources of information and knowledge.						
d3 Develop self- assessment and continuous learning.						
d2 Acquire basis and indicators for evaluating performance of others.						
d1 Create effective communication of all kinds.						
C4 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the characterization techniques.	X					
C3 Estimate the appropriate practical techniques to identify problems during the experimental work.	X					
C2 Design analytical protocols within a professional or workplace context.	X					
C1 Solve practical problems based on solid state chemistry.	X					
b3. Analyze the surface of solid using theories and statistical tests	X					
b2. Assume hypothesis through interpretation of experimental data.	X					
b1. Utilize solid state characterizations methods to identify crystal structure	X					
a2. Relate the advanced principles of the solid state chemistry to the literature of physical analysis methods.					X	
a1. List the application of modern methods for characterization of solids					X	
						Semester work
						Midterm exam
						Final written exam

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: ا.د/ هناء غراب



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وحدة ضمان الجودة

نموذج رقم (١١)

Solid state chemistry	مسمى المقرر
١٤٣٦٤٠	كود المقرر

جامعة : حلوان  
كلية : العلوم  
قسم : الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية				المهارات الذهنية			المعارف الرئيسية		أساليب التعليم و التعلم
d5	d4	d3	d2	d1	C4	C3	C2	C1	b3.	b2.	b1.	a2.	a1.	
Manage a scientific meeting and the ability to manage time.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the characterization techniques.	Estimate the appropriate practical techniques to identify problems during the experimental work.	Design analytical protocols within a professional or workplace context.	Solve practical problems based on solid state chemistry.	Analyze the surface of solid using theories and statistical tests	Assume hypothesis through interpretation of experimental data.	Utilize solid state characterizations methods to identify crystal structure	Relate the advanced principles of the solid state chemistry to the literature of physical analysis methods.	List the application of modern methods for characterization of solids	
					X			X			X	X	X	Lectures
X	X	X	X	X			X							Seminars
			X	X	X	X	X			X		X		Open discussion sessions
						X			X	X		X		Brain storm
		X	X					X						Self-learning

رئيس مجلس القسم العلمي: أ.د/ وفاء غنيم شوشة

أستاذ المقرر: أ.د/ هناء غراب

نموذج رقم (١٢)



Faculty of Science

" إن جودة العلوم الأساسية هي الضمان للعلوم الأخرى "

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وحدة ضمان الجودة

جامعة: جامعة حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

1- بيانات المقرر	
اسم المقرر : <b>Industrial technology of Building Material</b>	الرمز الكودي: <b>143641</b>
الفرقة / المستوى: <b>Master – 1<sup>st</sup> term</b>	عدد الوحدات الدراسية : نظري 2
التخصص: <b>non- organic Chemistry</b>	
2- هدف المقرر :	
<ul style="list-style-type: none"> <li>To give the students basics of the properties, industry mechanism of reaction of the building materials based on silicates</li> <li>To relate the applied part of the course to the academic chemistry</li> <li>To put more weight on the cement chemistry and applications</li> <li>To train the student in using the instrumentation in the building material science serving the industry and civil engineering</li> </ul>	
3- المستهدف من تدريس المقرر :	
<p><b>By the end of the course the graduate is expected to:</b></p> <p>a1. Relate the advanced principles of the building materials to the literature.</p> <p>a2. illustrate the strategies to use suitable types of building materials</p> <p>a3. Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.</p>	أ- المعلومات والمفاهيم :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>b1. Construct the suitable search plan to solve industrial related problems.</p> <p>b2. Analyze the surface of solid using theories and statistical tests</p> <p>b3. Select the suitable computer programs for statistics and graphs as well as presentations.</p>	ب- المهارات الذهنية :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>C1 Solve practical problems based on choosing the suitable building materials.</p> <p>C2 Design analytical protocols within a professional or workplace context.</p> <p>C3 Estimate the appropriate practical techniques to identify problems during the experimental work.</p> <p>C4 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the characterization techniques.</p>	ج- المهارات المهنية الخاصة بالمقرر :
<p><b>By the end of the course the graduate is expected to:</b></p> <p>d1 Create effective communication of all kinds.</p> <p>d2 Acquire basis and indicators for evaluating performance of others.</p> <p>d3 Develop self- assessment and continuous learning.</p> <p>d4 Work in a team and the leadership of teams.</p> <p>d5 Manage a scientific meeting and the ability to manage time.</p>	د- المهارات العامة :



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وحدة ضمان الجودة

<p><b>Cements</b> Chemistry of cements Types of cement Blended cement <b>Concrete</b> Properties of concrete Effect of super plasticizers <b>mortars</b> Properties of mortars Physical, chemical and mechanical of mortars <b>Ceramics</b> Types of clays Physical and chemical properties of clays Thermal stability of clays Firing process of clays <b>Natural and artificial stones</b> Lime stone and dolomitic limestone Sand stone Red bricks Cement bricks Sand bricks</p>	٤- محتوى المقرر :
<ul style="list-style-type: none"> <li>Lecture, Board, virtual presentations, models.</li> <li>Self-learning</li> <li>Brain storm</li> <li>Open discussion</li> </ul>	٥- أساليب التعليم والتعلم
Office hours.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة
	٧- تقويم الطلاب :
<ul style="list-style-type: none"> <li>Semester work (Oral exam , quizzes, reports)</li> <li>Mid- term exam</li> <li>Final-Term exam</li> </ul>	أ- الأساليب المستخدمة
<ul style="list-style-type: none"> <li>Semester work ..... during the entire semester</li> <li>Assessment 2 Midterm week: 9</li> <li>Assessment 3 Final exam</li> </ul>	ب- التوقيت
<ul style="list-style-type: none"> <li>Mid-Term exam 20 %</li> <li>Final-Term exam 70 %</li> <li>Semester work 20 %</li> </ul> <p style="text-align: center;">Total 100%</p>	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية والمراجع :	
	أ- مذكرات
Building materials and components A.Komar	ب- كتب ملزمة
Cement principles of production and use F.W. Locher	
Lea's Chemistry of Cement and Concrete	ج- كتب مقترحة
Cement International	د- دوريات علمية
Cement and Concrete research	أو نشرات ... الخ

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أستاذ المادة : أ.د/ هناء غراب





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وحدة ضمان الجودة

نموذج رقم (١١)

Industrial technology of Building material	مسمى المقرر
143641	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية				المعارف الرئيسية			أساليب التقويم			
d5	Manage a scientific meeting and the ability to manage time.											
d4	Work in a team and the leadership of teams.											
d3	Develop self- assessment and continuous learning.											
d2	Acquire basis and indicators for evaluating performance of others.											
d1	Create effective communication of all kinds.											
C4	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the characterization techniques.	X										
C3	Estimate the appropriate practical techniques to identify problems during the experimental work.		X									
C2	Design analytical protocols within a professional or workplace context.			X								
C1	Solve practical problems based on choosing the suitable building materials.				X							
b3.	Select the suitable computer programs for statistics and graphs as well as presentations.				X							
b2.	Analyze the surface of solid using theories and statistical tests				X							
b1.	Construct the suitable search plan to solve industrial related problems.				X							
a3.	Show the ethical and social responsibilities of the professional analyst which											
a2.	illustrate the strategies to use suitable types of building materials							X				
a1.	Relate the advanced principles of the building materials to the literature.									X		
												Semester work
												Midterm exam
												Final written exam

رئيس مجلس القسم العلمي: أ.د. / د. / وفاء غنيم شوشة

أستاذ المقرر: أ.د. / هناء غراب



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وحدة ضمان الجودة

نموذج رقم (١١)

Industrial technology of Building material	مسمى المقرر
143641	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية				المهارات الذهنية			المعارف الرئيسية			أساليب التعليم و التعلم
d5	d4	d3	d2	d1	C4	C3	C2	C1	b3	b2	b1	a3	a2	a1	
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the	Estimate the appropriate practical techniques to identify problems during the experimental work.	Design analytical protocols within a professional or workplace context.	Solve practical problems based on choosing the suitable building materials.	Select the suitable computer programs for statistics and graphs as well as presentations.	Analyze the surface of solid using theories and statistical tests	Construct the suitable search plan to solve industrial related problems	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	illustrate the strategies to use suitable types of building materials	Relate the advanced principles of the building materials to the literature.	
					X	X	X	X	X	X	X	X	X	X	Lectures
X	X	X	X	X											Seminars
					X										Open discussion sessions
				X			X			X					Brain storm
X	X	X	X	X											Self-learning

رئيس مجلس القسم العلمي: أ.د. / د. وفاء غنيم شوشة

أستاذ المقرر: أ.د. / هناء غراب



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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

Chemical separation methods	مسمى المقرر
143642	كود المقرر

جامعة حلوان  
كلية العلوم  
قسم الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر	
الفرقة / المستوى : pre-master -2 <sup>nd</sup> term	اسم المقرر : Chemical separation methods
الرمز الكودي : 143642	عدد الوحدات الدراسية : نظري ( 1 )
التخصص : non-organic chemistry	
٢- هدف المقرر : . The course aims to provide students of Pre-master non organic chemistry with general theoretical basis of chemical separation methods and some details on chromatographic methods to complement their scientific knowledge and allow them to solve their separation problems	
٣- المستهدف من تدريس المقرر :	
a1. List the application of modern methods of chemical separation techniques. a2. Find the updates in different chromatographic methods techniques that are of contemporary importance in the chemical sciences a3. Relate the advanced principles of the subject matter to the literature of analytical chemistry. a4. Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	أ- المعلومات والمفاهيم :
b1. Construct the suitable search plan to solve industrial related problems using chromatographic techniques. b2. Analyze search results using theories and statistical tests b3. Select the suitable computer programs for statistics and graphs as well as presentations.	ب- المهارات الذهنية :
C1 Design analytical protocols within a professional or workplace using the modern chemical separation techniques. C2 Estimate the appropriate practical techniques encountered during the project. C3 Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project. C4 Assess their practical reports .	ج- المهارات المهنية الخاصة بالمقرر :
d1 Create effective communication of all kinds. d2 Develop self- assessment and continuous learning. d3 Compare of different sources of information and knowledge. d4 Work in a team and the leadership of teams. d5 Manage a scientific meeting and the ability to manage time.	د - المهارات العامة :
1- General principles of instrumental analysis. 2- Classification of chromatography 3- Techniques of column chromatography. 4- Size exclusion chromatography. 5- Ion exchange chromatography. 6- Gas chromatography	٤- محتوى المقرر :





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7- High performance liquid chromatography 8- Paper chromatography 9- Thin – layer chromatography 10- Electrophoresis	
-Lectures - Discussion sessions - Brain storm. - cooperative learning. - oral presentations. -literature survey on the application of separation techniques in an industrial sector.	٥- أساليب التعليم والتعلم
Office hours.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة ٧- تقويم الطلاب :
-Semester work ( oral exam, reports, presentations, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب- التوقيت
<ul style="list-style-type: none"><li>• Mid-Term exam % 20</li><li>• Final-Term exam % 60</li><li>• Oral exam % 10</li><li>• Semester Work % 10</li></ul> Including literature survey task Total 100%	ج- توزيع الدرجات
٨- قائمة الكتب الدراسية والمراجع :	
	أ- مذكرات
G.D. Christian , Joy Wiley & sons, Analytical chemistry, Latest edition D.G.peters,J.M.Hayes ,and G.M.Hieftje, saunders golden sunburst series ,chemical separation and measurements.	ب- كتب ملزمة
Skoog, West, Holler, Analytical chemistry, Latest Edition.	ج- كتب مقترحة
<a href="http://www.springer.com">www.springer.com</a> -science direct ,scopus .sage and gal	د- دوريات علمية أو نشرات ... الخ

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أستاذ المادة : / أ.د/ سعيد انور





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وحدة ضمان الجودة

نموذج رقم (١١)

جامعة: حلوان.

كلية: العلوم

قسم: الكيمياء

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

Chemical separation methods	مسمى المقرر
14364٢	كود المقرر

مهارات عامة					مهارات مهنية				المهارات الذهنية			المعارف الرئيسية			أساليب التقويم
d5	Manage a scientific meeting and the ability to manage time.	C4	Assess their practical reports .	b3.	Select the suitable computer programs for statistics and graphs as well as presentations.	a4.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	a3.	Relate the advanced principles of the subject matter to the literature of analytical chemistry.	a2.	Find the updates in different chromatographic methods techniques that are of contemporary importance in the chemical sciences	a1.	List the application of modern methods of chemical separation techniques.	Semester work	
d4	Work in a team and the leadership of teams.	C3	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	b2.	Analyze search results using theories and statistical tests	a2.	Find the updates in different chromatographic methods techniques that are of contemporary importance in the chemical sciences	a1.	List the application of modern methods of chemical separation techniques.					Midterm exam	
d3	Compare of different sources of information and knowledge.	C2	Estimate the appropriate practical techniques encountered during the project.	b1.	Construct the suitable search plan to solve industrial related problems using chromatographic techniques.	a1.	List the application of modern methods of chemical separation techniques.							Final written exam	
d2	Develop self- assessment and continuous learning.	C1	Design analytical protocols within a professional or workplace using the modern chemical separation techniques.												
d1	Create effective communication of all kinds.														

رئيس مجلس القسم العلمي: ا.د / د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ سعيد انور



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وحدة ضمان الجودة

نموذج رقم (١١)

Chemical separation methods	مسمى المقرر
14364٢	كود المقرر

جامعة: حلوان

كلية: العلوم

قسم: الكيمياء

(ج) مصفوفة أساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية			المهارات الذهنية			المعارف الرئيسية				أساليب التعليم و التعلم	
d5	d4	d3	d2	d1	C4	C3	C2	C1	b3	b2	b1	a4	a3	a2		a1
Manage a scientific meeting and the ability to manage time.	Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Create effective communication of all kinds.	Assess their practical reports .	Discuss the advanced theories and concepts for the scientific basis for understanding their practical data and the outcomes of the project.	Estimate the appropriate practical techniques encountered during the project.	Design analytical protocols within a professional or workplace using the modern chemical separation techniques.	Select the suitable computer programs for statistics and graphs as well as presentations.	Analyze search results using theories and statistical tests	Construct the suitable search plan to solve industrial related problems using chromatographic techniques.	Show the ethical and social responsibilities of the professional analyst which includes professional adherence to honesty and the keeping of reliable accounts of laboratory work.	Relate the advanced principles of the subject matter to the literature of analytical chemistry.	Find the updates in different chromatographic methods techniques that are of contemporary importance in the chemical sciences	List the application of modern methods of chemical separation techniques.	Lectures
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Seminars
				X	X	X	X	X								Open discussion sessions
												X	X	X	X	Brain storm
X	X		X		X				X	X						Self-learning

رئيس مجلس القسم العلمي: . ا. د / د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ سعيد انور



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" إن جودة العلوم الأساسية هي  
الضمان للعلوم الأخرى "

The Quality of Basic Sciences is the Assurance for Other Sciences



وحدة ضمان  
الجودة

نموذج رقم (١٢)

جامعة حلوان  
كلية العلوم  
قسم الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر	
الرمز الكودي : ١٤٣٥١٣	اسم المقرر: X-Ray analysis
التخصص : non organic chemistry master	الفرقة / المستوى : master – 1 <sup>st</sup> or 2 <sup>nd</sup> term
٢- هدف المقرر :	عدد الوحدات الدراسية : ٢ نظري
١. After attending all lectures and completing the tutorial work, you will be able to: use the concepts of physical and theoretical chemistry to explain properties of gases, solutions and surfaces, including molecular spectroscopy. 2. To provide core knowledge in statistical thermodynamics	
٣- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	<b>By the end of the course the student is expected to:</b> a1. List the application of modern methods of X-Ray instruments. a2. Find the updates in instruments and instrumental techniques that are related to x ray analysis. a3. Relate the advanced principles of the X-Ray techniques to the literature of physical chemical analysis methods.
ب – المهارات الذهنية :	<b>By the end of the course the graduate is expected to:</b> b1. Construct the suitable search plan to solve industrial related problems. b2. Utilize theories of x ray instruments to overcome complex problems of a familiar and unfamiliar nature. b3. Analyze search results using theories and statistical tests
ج – المهارات المهنية الخاصة بالمقرر :	<b>By the end of the course the graduate is expected to</b> C1 Design analytical protocols within a professional or workplace context. C2 Estimate the appropriate practical techniques encountered during the project. C3 Discuss the advanced theories and concepts for the scientific basis to understand their practical data and the outcomes of the project.
د – المهارات الهامة :	<b>By the end of the course the graduate should have the ability to:</b> D1 – Create effective communication of all kinds. D2 - Acquire basis and indicators for evaluating performance of others. D3 – Develop self- assessment and continuous learning. D4 – Compare of different sources of information and knowledge. D5 – Work in a team and the leadership of teams.
٤- محتوى المقرر :	1-Fundamental principles instrument components x-ray fluorescence methods 2- x- ray absorption methods 3- x-ray diffraction methods the electron microprobe
٥- أساليب التعليم و التعلم	- Lectures using Data show - Discussion sessions -brain storm Self-learning
٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة	Office hours.
٧- تقويم الطلاب :	
أ- الأساليب المستخدمة	Written exam to assess (short essay and MCQ). -Mid-Term exam ..... to assess to assess proceeding in learning -Final-Term exam ...to assess knowledge and understanding problem solving.



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الجودة

-Oral Exam to assess ability to understand knowledge.	
Assessment 1 Oral exam Week ... during the entire course.	ب - التوقيت
Assessment 2 ... Mid-Term exam Week .....9.....	
Assessment 3... ... Final exam Week : to be decided by general exam	
Mid-Term exam 20 %	ج - توزيع الدرجات
Final-Term exam 60 %	
Oral exam and other course activities 20 %	
Total 100%	
٨- قائمة الكتب الدراسية و المراجع :	
لا يوجد	أ- مذكرات
Essential books (text books)	ب- كتب ملزمة
	ج- كتب مقترحة
- Journal of chemical education ( <a href="http://jchemed.chem.wisc.edu/index.html">http://jchemed.chem.wisc.edu/index.html</a> ).	د- دوريات علمية أو نشرات ... إلخ

رئيس مجلس القسم العلمي :

أ. د / وفاء غنيم شوشة

أستاذ المادة :

أ.د/ أحمد رمضان



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وحدة ضمان الجودة

نموذج رقم (١١)

X-Ray analysis	مسمى المقرر
143644	كود المقرر

جامعة: حلوان

كلية: العلوم

قسم: الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية			المهارات الذهنية			المعارف الرئيسية			المحتويات للمقرر		
d5	d4	d3	d2	d1	C3	C2	C1	b3	b2	b1	a3	a2	a1			
Work in a team and the leadership of teams.	Compare of different sources of information and knowledge.	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis to understand their practical data and the outcomes of the project.	Estimate the appropriate practical techniques encountered during the project.	Design analytical protocols within a professional or workplace context.	Analyze search results using theories and statistical tests	Utilize theories of x ray instruments to overcome complex problems of a familiar and unfamiliar nature	Construct the suitable search plan to solve industrial related problems.	Relate the advanced principles of the X-Ray techniques to the literature of physical chemical analysis methods.	Find the updates in instruments and instrumental techniques that are related to x ray analysis.	List the application of modern methods of X-Ray instruments.	أسبوع الدراسة	Fundamental principles instrument components x-ray fluorescence methods x- ray absorption methods x-ray diffraction methods the electron microprobe	
					X				X			X	X			1-4
X	X	X	X	X		X			X			X				5-8
X	X	X	X	X	X		X	X		X	X					9-12

رئيس مجلس القسم العلمي: . ا. د / د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ أحمد رمضان



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وحدة ضمان الجودة

نموذج رقم (١١)

X-Ray analysis	مسمى المقرر
143644	كود المقرر

جامعة: حلوان

كلية: العلوم

قسم: الكيمياء

(ب) مصفوفة اساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية			المهارات الذهنية			المعارف الرئيسية			اساليب التقويم
d5	d4	d3	d2	d1	C3	C2	C1	b3	b2	b1	a3	a2	a1	
Work in a team and the leadership of teams.	Compare of different sources of information and	Develop self- assessment and continuous learning.	Acquire basis and indicators for evaluating performance of others.	Create effective communication of all kinds.	Discuss the advanced theories and concepts for the scientific basis to understand their practical data and the outcomes of the project.	Estimate the appropriate practical techniques encountered during the project.	Design analytical protocols within a professional or workplace context.	Analyze search results using theories and statistical tests	Utilize theories of x ray instruments to overcome complex problems of a familiar and unfamiliar nature	Construct the suitable search plan to solve industrial related problems.	Relate the advanced principles of the X-Ray techniques to the literature of physical chemical analysis methods.	Find the updates in instruments and instrumental techniques that are related to x ray analysis.	List the application of modern methods of X-Ray instruments.	
X	X	X	X	X	X	X		X			X	X	X	Semester work
					X		X	X	X	X	X		X	Midterm exam
					X	X			X	X	X		X	Final written exam

رئيس مجلس القسم العلمي: د. ا. د / د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ أحمد رمضان





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وحدة ضمان الجودة

نموذج رقم (١١ أ)

جامعة: حلوان

كلية: العلوم

قسم: الكيمياء

X-Ray analysis	مسمى المقرر
143644	كود المقرر

(ج) مصفوفة اساليب التعليم و التعلم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة					مهارات مهنية			المهارات الذهنية			المعارف الرئيسية			اساليب التعليم و التعلم															
d5	Work in a team and the leadership of teams.	d4	Compare of different sources of information and knowledge.	d3	Develop self- assessment and continuous learning.	d2	Acquire basis and indicators for evaluating performance of others.	d1	Create effective communication of all kinds.	C3	Discuss the advanced theories and concepts for the scientific basis to understand their practical data and the outcomes of the project.	C2	Estimate the appropriate practical techniques encountered during the project.	C1	Design analytical protocols within a professional or workplace context.	b3.	Analyze search results using theories and statistical tests	b2.	Utilize theories of x ray instruments to overcome complex problems of a familiar and unfamiliar nature	b1.	Construct the suitable search plan to solve industrial related problems.	a3.	Relate the advanced principles of the X-Ray techniques to the literature of physical chemical analysis methods.	a2.	Find the updates in instruments and instrumental techniques that are related to x ray analysis.	a1.	List the application of modern methods of X-Ray instruments.	Lectures	
									X					X								X	X					Seminars	
X	X	X	X	X						X												X							Open discussion sessions
											X											X							Brain storm
												X				X													Self-learning

رئيس مجلس القسم العلمي: د. ا. د / د / وفاء غنيم شوشة

أستاذ المقرر: أ.د/ أحمد رمضان



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الجودة

نموذج رقم (١٢)

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

توصيف مقرر دراسي 2016/2017

١- بيانات المقرر	
الفرقة / المستوى : <b>Pre-masters</b>	اسم المقرر : <b>Catalysis</b>
الرمز الكودي <b>143645</b>	
التخصص : <b>Non organic Chemistry</b>	
عدد الوحدات الدراسية : نظري : 2	
٢- هدف المقرر : To give the student an overview about the advanced studies of the chemistry and mechanisms of catalysis.	
٣- المستهدف من تدريس المقرر :	
a1. Find the updates in instruments and instrumental techniques that are used for prediction of reaction mechanism. a2. Extend students skills in literature search engines; the oral presentation of key concepts to an expert audience and the writing of reports (including critical evaluation). a3. Relate the advanced principles of the catalysis to the literature of physical chemistry analysis methods. a4. illustrate the strategies to manage catalytic reactions under specific conditions.	أ- المعلومات و المفاهيم :
b1. Construct the suitable search plan to investigate and solve industrial problems using catalysts. b2. Utilize theories to detect the reaction mechanisms of catalytic and photocatalytic reactions. b3. Assume hypothesis through the interpretation of experimental data for catalytic reactions .	ب - المهارات الذهنية :
C1 Design analytical protocols within a professional context to explore the role of the catalyst during the reactions. C2 Estimate the appropriate practical techniques to investigate the mechanism of definite reactions. C3 Discuss the advanced theories and concepts for the interpretation of the experimental data.	ج - المهارات المهنية الخاصة بالمقرر :
d1 Create effective communication of all kinds. d2 Acquire basis and indicators for evaluating performance of others. d3 Develop self- assessment and continuous learning. d4 Compare of different sources of information and knowledge. d5 Work in a team and the leadership of teams. d6 Manage a scientific meeting and the ability to manage time.	د - المهارات العامة :
1- Steady state approximation 2- Langmuir adsorption isothermal 3- Langmuir-Hinshelwood adsorption isothermal or Eley-Rideal mechanism 4- Eley-Rideal kinetics	٤- محتوى المقرر :



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5- The Quasi-equilibrium Approximation 6- MARI approximation adsorption and catalysis 7- Temperature programmed desorption 8- Ammonia and Methane synthesis. 9- Poisoning of catalysts.	
1. Lectures 2. Brain storm 3. Self-learning 4. Seminars and presentations 5. Discussions	٥- أساليب التعليم و التعلم
Office hours	٦- أساليب التعليم و التعلم للطلاب ذوي القدرات المحدودة
٧- تقويم الطلاب :	
-Semester work ( oral exam, reports, presentations, quiz, assignments) -Mid-Term exam -Final-Term exam	أ- الأساليب المستخدمة
Assessment 1 semester work during the entire course. Assessment 2 ... Mid-Term exam Week .....9..... Assessment 3..... Final exam Week : to be decided by general exam	ب - التوقيت
<ul style="list-style-type: none"> <li>• Final-Term exam 60 %</li> <li>• Oral exam 20 %</li> <li>• Semester work 20 %</li> </ul> <p style="text-align: right;">Total 100%</p>	ج - توزيع الدرجات
٨- قائمة الكتب الدراسية و المراجع :	
Notes are compiled from different books and are available to any student on request.	أ- مذكرات
Concept of modern catalysis and kinetics I. Chorkendorff. J. W. Niemantsverdriet	ب- كتب ملزمة
	ج- كتب مقترحة
1- Periodicals, Web sites, <a href="http://www.edu.cu.eg/science/index.htm">www.edu.cu.eg/science/index.htm</a>	د- دوريات علمية أو نشرات ... إلخ

رئيس مجلس القسم العلمي :  
أ.د وفاء غنيم شوشة

أستاذ المادة :  
دكتور/ أمينة أحمد فؤاد ذكري



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وحدة ضمان الجودة

نموذج رقم (١١) (أ)

143645	مسمى المقرر
catalysis	كود المقرر

جامعة : حلوان.  
كلية : العلوم.  
قسم : الكيمياء.

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المعارف الرئيسية		المحتويات للمقرر	
d6	Manage a scientific meeting and the ability to manage time.	C3	Discuss the advanced theories and concepts for the interpretation of the experimental data.	a1.	Find the updates in instruments and instrumental techniques that are used for prediction of reaction mechanism	1	Steady state
d5	Work in a team and the leadership of teams.	C2	Estimate the appropriate practical techniques to investigate the mechanism of definite reactions.	a2.	Extend students skills in literature search engines; the oral presentation of key concepts to an expert audience and the writing of reports (including critical evaluation).	2-3	Langmuir adsorption isothermal.
d4	Compare of different sources of information and knowledge.	C1	Design analytical protocols within a professional context to explore the role of the catalyst during the reactions.	a3.	Relate the advanced principles of the catalysis to the literature of physical chemistry analysis methods.	4-5	Langmuir-Hinshelwood adsorption isothermal or Eley-Rideal mechanism
d3	Develop self- assessment and continuous learning.	b3.	Assume hypothesis through the interpretation of experimental data for catalytic reactions .	a4.	illustrate the strategies to manage catalytic reactions under specific conditions.	6-7	Eley-Rideal kinetics
d2	Acquire basis and indicators for evaluating performance of others.	b2.	Utilize theories to detect the reaction ..mechanism s of catalytic and photocatalytic reactions	a1.	Construct the suitable search plan to investigate and solve industrial problems using catalysis	8	The Quasi -equilibrium Approximation
d1	Create effective communication of all kinds.	b1.	Construct the suitable search plan to investigate and solve industrial problems using catalysis	a2.	Extend students skills in literature search engines; the oral presentation of key concepts to an expert audience and the writing of reports (including critical evaluation).	9	MARI approximation adsorption and catalysis Approximation.
C3	Discuss the advanced theories and concepts for the interpretation of the experimental data.	b1.	Construct the suitable search plan to investigate and solve industrial problems using catalysis	a1.	Find the updates in instruments and instrumental techniques that are used for prediction of reaction mechanism	10-11	Temperature programmed desorption.
C2	Estimate the appropriate practical techniques to investigate the mechanism of definite reactions.	b2.	Utilize theories to detect the reaction ..mechanism s of catalytic and photocatalytic reactions	a2.	Extend students skills in literature search engines; the oral presentation of key concepts to an expert audience and the writing of reports (including critical evaluation).	12	Ammonia and Ethanol synthesis
C1	Design analytical protocols within a professional context to explore the role of the catalyst during the reactions.	b3.	Assume hypothesis through the interpretation of experimental data for catalytic reactions .	a3.	Relate the advanced principles of the catalysis to the literature of physical chemistry analysis methods.		

رئيس مجلس القسم العلمي : أ.د/ وفاء غنيم شوشة..

أستاذ المقرر: امينة احمد فؤاد ذكري



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وحدة ضمان الجودة

نموذج رقم (١١) أ

catalysis	مسمى المقرر
143645	كود المقرر

جامعة : حلوان.  
كلية : العلوم.  
قسم : الكيمياء.

(ب) مصفوفة أساليب التقويم مقابل المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة		مهارات مهنية		المهارات الذهنية		المعارف الرئيسية		أساليب التقويم	
d6	Manage a scientific meeting and the ability to manage time.	C3	Discuss the advanced theories and concepts for the interpretation of the experimental data.	b3.	Assume hypothesis through the interpretation of experimental data for catalytic reactions.	a4.	illustrate the strategies to manage catalytic reactions under specific conditions	a1.	Find the updates in instruments and instrumental techniques that are used for prediction of reaction mechanism
d5	Work in a team and the leadership of teams.	C2	Estimate the appropriate practical techniques to investigate the mechanism of definite reactions.	b2.	Utilize theories to detect the reaction ..mechanisms of catalytic and	a3.	Relate the advanced principles of the catalysis to the literature of physical chemistry analysis methods.		
d4	Compare of different sources of information and knowledge.	C1	Design analytical protocols within a professional context to explore the role of the catalyst during the reactions.	b1.	Construct the suitable search plan to investigate and solve industrial problems using catalysis.	a2.	Extend students skills in literature search engines; the oral presentation of key concepts to an expert audience and the writing of reports (including critical evaluation).		
d3	Develop self- assessment and continuous learning.								
d2	Acquire basis and indicators for evaluating performance of others.								
d1	Create effective communication of all kinds.								
X	X	X	X	X	X	X	X	X	Semester work
			X	X	X		X	X	Midterm exam.
			X	X	X		X	X	Final written exam

رئيس مجلس القسم العلمي : أ.د/ وفاء غنيم شوشة.

أستاذ المقرر: امينة احمد فؤاد ذكري





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وحدة ضمان  
الجودة

نموذج رقم ( ١٢ )

جامعة: حلوان  
كلية: العلوم  
قسم : الكيمياء

توصيف المقرر دراسي

١- بيانات المقرر	
الفرقة / المستوي: Premasters- .2 <sup>nd</sup> semester	اسم المقرر : Statistics And Application In Chemistry
عدد الوحدات الدراسية : نظري ( ١ ) عملي ( -- )	الرمز الكودي: 143638 C
	التخصص: Non organic Chemistry

٢- هدف المقرر : On the complement of the course the student will cover the following topics: 1- Studying the statistical measures as mean, variance and mode. 2- Studying the correlation coefficient and the regression. 3- Standard normal distribution and its characteristics. 4- Sampling distributions of the mean and variance. 5- Understand the concepts of confidence intervals and hypothesis testing.	
٣- المستهدف من تدريس المقرر :	
<b>By the end of the course the graduate is expected to:</b> a1. Outline the importance of statistics and its applications in real world. a2. Outline the concepts of confidence intervals and hypothesis testing. a3. List Theories and fundamentals related to evaluate the correlation coefficient and the regression.	أ- المعلومات والمفاهيم :
<b>By the end of the course the graduate is expected to:</b> b1. Analyze search results using theories and statistical tests b2. Utilize appropriate statistical methods to solve problems.	ب- المهارات الذهنية :
<b>By the end of the course the graduate is expected to:</b> c1. Estimate the appropriate method to process data. c2. Solve statistical practical problems.	ج - المهارات المهنية الخاصة بالمقرر :
<b>By the end of the course the graduate is expected to:</b> d1. Develop self- assessment and continuous learning. d2. Compare of different sources of information and knowledge.	د - المهارات العامة :
<ul style="list-style-type: none"> <li>The statistical measures as mean, variance and mode.</li> <li>The correlation and regression.</li> <li>Standard normal distribution and its characteristics.</li> <li>Sampling distributions of the mean and variance.</li> <li>Intervals and hypothesis testing.</li> </ul>	٤- محتوى المقرر :



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- Discussion sessions -Solving problems sessions to gain -practical skills.	
Office hours.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة
	٧- تقويم الطلاب :
Semester work (Reports, assignments, exercises , regular written quizzes , practical projects, final practical exams ) - Final written exam to assess knowledge and understanding.	أ- الأساليب المستخدمة
Assessment 1 <b>Mid – Term Exam</b> Week: 7 <sup>th</sup> Assessment 2 <b>discussions</b> Week: through the term Assessment 3 <b>Final exam</b> Week: to be decided by general exam schedule	ب- التوقيت
<ul style="list-style-type: none"><li>• Mid-Term exam      20 %</li><li>• Final-Term exam      60 %</li><li>• Semester Work      20 %</li></ul> Total                      100%	ج- توزيع الدرجات
	٨- قائمة الكتب الدراسية والمراجع :
A course notes prepared by staff.	أ- مذكرات
	ب- كتب ملزمة
	ج- كتب مقترحة
	د- دوريات علمية أو نشرات ... الخ

رئيس مجلس القسم العلمي : أ.د / وفاء غنيم

أستاذ المادة : / د. هدى العطار





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وحدة ضمان  
الجودة

نموذج رقم ( ١١ )

<i>Statistical Studies and Mathematical Applications in Chemistry</i> 143638 C	مسمى المقرر
	كود المقرر

جامعة: حلوان  
كلية: العلوم  
قسم: الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسي

مهارات عامة	مهارات مهنية	المهارات الذهنية	المعارف الرئيسية	أسبوع الدراسة	المحتويات للمقرر
d1			a1	1-3	Studying the statistical measures as mean, variance and mode.
d2	C1	b1		4-6	Studying the correlation and regression.
		b2	a2	7-8	Standard normal distribution and its characteristics.
	C2		a3	9-10	Sampling distributions of the mean and variance.
	C2	b2	a2	11-12	Understand the concepts of confidence intervals and hypothesis testing

رئيس مجلس القسم العلمي : أ.د / وفاء غنيم

أستاذ المادة : د/ د. هدى العطار