



**ATTACHMENT 5.**

**Kingdom of Saudi Arabia**  
**The National Commission for Academic Accreditation &**  
**Assessment**

**T6. Course Specifications**  
**(CS)**

**Selected Topics in**  
**Physical Chemistry**  
**(402743-2)**





## Course Specifications

Institution: <b>Umm Al-qura University</b>	Date: <b>2017</b>
College/Department: <b>Faculty of Applied Sciences / Chemistry Department</b>	

### A. Course Identification and General Information

1. Course title and code: <b>Selected Topics in Physical Chemistry / 402743-2</b>	
2. Credit hours: <b>2 ( theoretical)</b>	
3. Program(s) in which the course is offered.: <b>Ph. D. in Chemistry</b> (If general elective available in many programs indicate this rather than list programs)	
4. Name of faculty member responsible for the course: <b>Prof. Alaa El-Shafei</b>	
5. Level/year at which this course is offered: <b>2<sup>nd</sup> / 1<sup>st</sup></b>	
6. Pre-requisites for this course (if any): <b>not applicable</b>	
7. Co-requisites for this course (if any): <b>not applicable</b>	
8. Location if not on main campus: <b>El-Abedyah, El-Azizya, and El-Zaher</b>	
9. Mode of Instruction (mark all that apply)	
a. traditional classroom	<input type="checkbox"/> What percentage? <input type="checkbox"/>
b. blended (traditional and online)	<input checked="" type="checkbox"/> What percentage? <input type="text" value="100"/>
c. e-learning	<input type="checkbox"/> What percentage? <input type="text"/>
d. correspondence	<input type="checkbox"/> What percentage? <input type="text"/>
f. other	<input type="checkbox"/> What percentage? <input type="text"/>
Comments:	



## B Objectives

1. What is the main purpose for this course?

By the end of this course students will be able to:

- Discuss the importance of some novel applications in the field of physical chemistry.
- Explain some subjects in new trends in physical chemistry.
- Understand current publications in selected topics in physical chemistry.
- Write an essay about one of the most important fields of physical chemistry research.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Changes in content as a result of new research in the field.
- The use of smart teaching halls for lectures.
- Increased use of IT or web based reference material.
- Encourage students to carry out research reports in the selected topics in physical chemistry using the library, data base services, and/or websites.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
<ul style="list-style-type: none"><li>• The contents of this course will be chosen from selected topics of current interest in theoretical and experimental fields of physical chemistry.</li><li>• List of topics is changeable and will be filed in each semester by administrator according to the course taught</li></ul>	<b>13</b>	<b>26</b>





2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	26	-		-		26
Credit	2	-		-		2

3. Additional private study/learning hours expected for students per week.	2
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#### 4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Explain the modern techniques applied in physical chemistry.	• Use of the internet to carry out some reports on course subjects. • Lectures • Scientific discussion • Use the library to	• Long and short essays. • Written mid-term and final exams.
1.2	Describe the role of modern applications of physical chemistry in our life.		
1.3	Write on some selected topics in physical chemistry.		
1.4	Demonstrate a systematic understanding of fundamental physicochemical principles.		



1.5	Clarify some selected subjects in physical chemistry.	work duties and a small research on physical chemistry.	
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Discuss of essential facts, concepts, principles and theories relating to the subject areas covered in his course	<ul style="list-style-type: none"><li>• Web-based study.</li><li>• Lectures.</li><li>• Scientific discussion</li><li>• Library visits.</li></ul>	<ul style="list-style-type: none"><li>• Measuring the response to the assignments.</li><li>• Periodic tests and assignments.</li></ul>
2.2	Apply the modern in-situ and ex-situ analytical techniques in physical chemistry.		
2.3	Evaluate and interpret of chemical information and data		
2.4	Analyze problems and design plan strategies for their solution		
2.5	Use computational methodology and models skills based on practical applications of theories		
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Develop the student's ability in self-reliance and responsibility.	<ul style="list-style-type: none"><li>• Periodic individual duties to develop the skill of taking responsibility and self-reliance.</li><li>• Dividing students into groups to carry out collective scientific reports.</li></ul>	<ul style="list-style-type: none"><li>• Assessment of individual tasks and duties to determine the student's ability to self-reliance.</li><li>• Evaluate the results of collective works and duties as well as knowing the contribution of</li></ul>
3.2	Choose the suitable method to solve problems in selected topics in physical chemistry.		
3.3	Operate in team work and accept his college's opinions.		



			each individual through dialogue and discussion.
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Communicate effectively in oral and written forms.	<ul style="list-style-type: none"> <li>• The use of computers in the training room of the department.</li> <li>• Using the internet for collecting data.</li> <li>• Visiting research centers.</li> </ul>	<ul style="list-style-type: none"> <li>• Web-based student performance systems.</li> <li>• Individual and group presentations.</li> <li>• Evaluation of the duties associated with the proper use of numerical and communication skills.</li> </ul>
4.2	Use basic mathematical and statistical techniques to perform data analysis.		
4.3	Use computers and the international information network (the Internet) to perform calculations and to identify recent research relevant to decision sources.		
<b>5.0</b>	<b>Psychomotor</b>		
5.1	Not applicable.		
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments and activities.	--	10 %
2	Midterm Exam.	8	30 %
3	Final Exam.	15-16	60 %



4	<b>Total</b>	<b>100 %</b>
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#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) <ul style="list-style-type: none"><li>• Availability of Staff members to provide counselling and advice.</li><li>• Office hours: During the working hours weekly.</li><li>• Academic advising for students.</li></ul>
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#### E. Learning Resources

1. List Required Textbooks <ul style="list-style-type: none"><li>• The list of required text book will be changed according to the selected topics.</li></ul>
2. List Essential References Materials (Journals, Reports, etc.) <ul style="list-style-type: none"><li>• The essential references materials will be changed according to the selected topics.</li></ul>
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) <ul style="list-style-type: none"><li>• The recommended textbooks and reference material will be changed according to the selected topics.</li></ul>
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. <ul style="list-style-type: none"><li>• <a href="http://www.chemweb.com">http://www.chemweb.com</a></li><li>• <a href="http://www.sciencedirect.com">http://www.sciencedirect.com</a></li><li>• <a href="http://www.rsc.org">http://www.rsc.org</a></li></ul>
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. <b>Non.</b>

#### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) <ul style="list-style-type: none"><li>• Equipped lecture hall and laboratory equipped specializing in physical chemistry.</li></ul>



2. Computing resources (AV, data show, Smart Board, software, etc.)

- Room equipped with computers, data show and TV.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

- **No other** requirements.

#### G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Questionnaires can be used to collect student feedback.
- Student representation on staff-student committees and institutional bodies.
- Structured group discussions and/or focus groups.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Visits by other faculty can provide information about the process of teaching.
- Colleagues have the expertise to evaluate the quality of a course as evidenced by its content and format (peer reviewers).
- The instructor's statement of his/her goals for the course, teaching methods and philosophy, student outcomes, and plans for improvement are a critical source of information.
- A systematic self-review has the potential for contributing significantly to the instructor's teaching improvement by focusing on the strengths and weaknesses of the course in light of his/her original course objectives.

3. Processes for Improvement of Teaching

- The application of e-learning.
- Exchange of experiences internal and external.
- Training programs and workshops for Staff member.
- Review of strategies proposed.
- Providing new tools for learning.

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Periodic exchange and remarking of tests or a sample of assignments with staff at another





institution.
<ul style="list-style-type: none"><li>• Check marking by an independent member teaching staff of a sample of student work.</li></ul>
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
<ul style="list-style-type: none"><li>• Consult other staff of the course.</li><li>• Hosting a visiting staff to evaluate of the course.</li><li>• Workshops for teachers of the course.</li><li>• Periodic review of the contents of the syllabus and modify the negatives.</li></ul>

Name of Instructor: **Prof. Alaa El-Shafei**

Signature: \_\_\_\_\_ Date Report Completed: **2017**

Name of Field Experience Teaching Staff \_\_\_\_\_

Program Coordinator: \_\_\_\_\_

Signature: \_\_\_\_\_ Date Received: \_\_\_\_\_

