Course Specification
(Bachelor)

Course Title:	Selected Applications in Chemistry
Course Code:	CHM 1351
Program:	Bachelor of Science in Chemistry
Department:	Chemistry
College:	Science
Institution:	Imam Mohammed Ibn Saud Islamic University
Version:	1
Last Revision Date:	*Pick Revision Date.*

Table of Contents

A. General information about the course:

-1. Course Identification

1. Credit hours: 1 (0,0, 3)					
1 (0 Lectures, 0 Tutorials, 3 Lab)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: Level 5/ year 3					
4. Course general Description:					
The course covers the all required knowledge and information for appropriate software that will be apply in his labs and courses. The course will provide sufficient information and application to do search and download scientific papers and books.					
5. Pre-requirements for this course (if any)**:**					
General chemistry 1/ CHM 1101					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
At the end of this course the student will be able to: • **Use the computer software such as Excel to present his data graphically and obtain constants.** • **Download lectures, refrences, books and research articles that .** • **Wtite his home work, mini-projects and graduation project using Microsoft Word.**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	**45**	**100%**
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	**0**
2.	**Laboratory/Studio**	**45**
3.	**Field**	**0**
4.	**Tutorial**	**0**
5.	**Others (specify)**	**0**
Total		**45**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**To identify the importance of software chemistry**	**K1; K2;**	• three hours are weekly containing Laboratory activities and Oral Discussion. • A Private study including work on writing report.	• Laboratory Reports. • Oral Discussion marks • Participation.
1.2	**To list of applications of software chemistry**	**K1; K2;**	• three hours are weekly containing Laboratory activities with group discussion. Think and discuss about Required Software chemistry	• Lab. Reports. • Oral Discussions.
1.3	**To recognize scientific journals and database.**	**K1; K2;**	• three hours are weekly containing Laboratory activities with group discussion. Think and write about the chemical equation by	• Laboratory Reports • Oral Discussions.

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
			appropriate software	
2.0	Skills			
2.1	**To illustrate a simple mechanism using appropriate software program**	**; S1; S2**	• Laboratory activities Think and write about the chemical equation by appropriate software	• Questions in labs. • Participation through Laboratories Oral Discussion,
2.2	**To compare between the software programs**	**S1; S2; S3**	Encourage students to communicate their logic chemical thinking, and to work and discuss cooperatively with their peers to develop individual skills.	• Questions in labs. • Participation through Laboratories Oral discussion
2.3	**To use Computer, software in, Perform Calculations, and chemical drawing.**	**; S2**	Encourage the students to use the Chemicals Glass wares and Instruments with caring and safety	• Oral Discussion. • Discussion marks Giving marks for participation in the lab.
3.0	Values, autonomy, and responsibility			
3.1	**To show self-confidence attitudes through single and team work practical sessions, presentations, and discussions.**	**V1; V2**	• labs and Group discussion • Have the ability to ask and answer questions as they arise Brain storming Exercises	• Questions in labs. • Participation through Laboratories • Oral discussion.

C. Course Content

No	List of Topics	Contact Hours
1.	**The Evolution of Computers in Chemistry Computing and Communications in Chemistry Education**	**3**

2.	Microsoft Word: format copy, page layout: margins, orientation, size, columns, breaks: pages, columns, text wrapping, next page, continuous, even and odd pages, line numbers, review: track changes, show comments, accept and reject, insert: cover pages, pictures, tables, shapes, charts, hyperlink, bookmark, comment, header, footer, page number, text box, word art, symbol, object, design: themes, colors, fonts, watermark, page color, page borders, references: table of contents, insert footnote, insert endnote, insert citation, view: read mode, print layout, web layout, outline, draft, ruler, gridlines, navigation pane, zoom, one page, multiple pages, page width, table design: header row, total row, first column, last column, plain tables, grid tables, styles, shading, borders styles, layout: select, view grids, draw table, erase, delete, insert (above, below, left, right), split (cells, tables), auto fit, alignment, sort, convert to text, pictures properties, word to pdf	3
3	Microsoft Excel: home: clipboard, font, alignment, number, styles, cells, editing, insert: tables, illustrations, charts, hyperlinks, text, symbol, page layout: themes, page setup, scat to fit, sheet options, arrange, formulas: function library, data: data tools, outline, review: proofing, language, comments, changes, view: workbook view, show, zoom, windows.	9
4	OriginLab applications: clipboard, font, alignment, number, styles, cells, editing, insert: tables, illustrations, charts, hyperlinks, text, symbol, page layout: themes, page setup, scat to fit, sheet options, arrange, formulas: function library, data: data tools, outline, review: proofing, language, comments, changes, view: workbook view, show, zoom, windows.	3
5	Libreoffice : format copy, page layout: margins, orientation, size, columns, breaks: pages, columns, text wrapping, next page, continuous, even and odd pages, line numbers, review: track changes, show comments, accept and reject, insert: cover pages, pictures, tables, shapes, charts, hyperlink, bookmark, comment, header, footer, page number, text box, word art, symbol, object, design: themes, colors, fonts, watermark, page color, page borders, references: table of contents, insert footnote, insert endnote, insert citation, view: read mode, print layout, web layout, outline, draft, ruler, gridlines, navigation pane, zoom, one page, multiple pages, page width, table design: header row, total row, first column, last column, plain tables, grid tables, styles, shading, borders styles, layout: select, view grids, draw table, erase, delete, insert (above, below, left, right), split (cells, tables), auto fit, alignment, sort, convert to text, pictures properties, word to pdf	6
6	Chemdraw: Chemical Drawing Software; prediction of physical properties of compounds; prediction of chemical properties; prediction of stereochemistry, Prediction of IUPAC name; prediction of H1-NMR, C13-NMR and mas frgments;Prediction of sterioisomers. Synthesis and Retrosynthesis of organic compounds.	9
7	ChemScetch: Chemical Drawing Software,	6

8	**Bibliographic Databases using Endnote, Mendeley, Chemical Abstracts, Journals, Conferences, Reports, Patents**	**3**
9	**Chemistry link collections:** Major chemistry resources, Specialist resources, chemistry web search sites, ... etc.	**3**
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes, Attendance, Participation, Lab. Reports	All the semester	20 %
2.	Midterm Exam	Around 6th 7th week	20 %
3.	Midterm Exam	Around 11th 12th week	20 %
4.	Final Exam	Around 17th week	40 %
5.	Total		100%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	▪ Computer Software Applications in Chemistry, Peter C. Jurs, 2nd Edition. ISBN: 978-0-471-10587-9
Supportive References	
Electronic Materials	• Blackboard • http://www.acdlabs
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• **Each Laboratory should be equipped with maximum 20 seats**
Technology equipment (projector, smart board, software)	**The rooms are equipped with data show, Smart Board, WI-FI access.**
Other equipment (depending on the nature of the specialty)	**Software: Chem Draw, office (Words, Excel), ACD labs** • **Computers**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct: Questionnaire.
	Course Responsible	Direct: Course e-Portfolio. Indirect: Second examiner checklist-Course report.
	Peer Reviewer	Direct: Questionnaire. Indirect: External assessor report.
Effectiveness of Students assessment	Program Leaders	Direct: Course e-Portfolio. Indirect: Course report.
Quality of learning resources	Students	Indirect: Second examiner checklist-Course report.
	Faculty (Academic Advisory)	Direct: course Entrance/Exit. Indirect: Observations - Accreditation review.
	Program Leaders	Direct: Course e-Portfolio. Indirect: Course evaluation survey- Observations- Syllabus review- Accreditation review.
The extent to which CLOs have been achieved	Course Responsible	Direct: Exams - Course e-Portfolio. Indirect: Second examiner checklist-Course report.
	Program Leaders	Indirect: Exams.
Lab Performance	Students	Direct: Lab reports, Final Lab exam, Course e-Portfolio.
	Course Responsible	

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	COUNCIL OF DEPARTMENT OF CHEMISTRY
REFERENCE NO.	7 (NO. 2/3)
DATE	29/3/1446 - 2/10/2024