Course specifications

Programme(s) on which the course is given: B.Sc. chemistry
Major or minor element of programmes: Major
Department offering the programme: chemistry
Department offering the course: chemistry
Academic year / Level: 3th level
Date of specification approval: 2013

A- Basic Information

Title: Carbohydrate Code: CH 3510
Credit Hours: 2 Lecture: 1.5
Tutorial: 1 Practical: 2 Total: 2
Teaching staff: Prof. dr. / Hamed Abdel-bary & Dr/ Farag El-Essawy

B- Professional Information

1 – Overall aims of course

The graduates should be able to give an account on carbohydrates and understanding the basics concepts of different types of carbohydrates. Define the application of cellouse and starch.

2 – Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

After completing the course the graduate should be able to

a1- Know different types of monosaccharides, disaccharides, polysaccharides
a2- Define Mutarotation & Epimerization.
a3- Give structure of different carbohydrates.

b- Intellectual skills

b1- create the graduate´s capability to understanding and drawing the structure of disaccharides (Maltose, Lactose, …) and polysaccharides (cellouse and starch) and their reactions.

c- Professional and practical skills

c1- Use lab. Experiments to differinate between different types of saccarides and their Mutarotation and confirmation the structure of them.

d- General and transferable skills

D1-improve of the graduates skills especially in thinking.

d2- Mutual discussion and oral presentation.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Monosacharides, Reactions	2		
Mutarotation - Epimerisation	2		
Configuration – anomeric carbonator	2		
Ring size – ascending and Descending	2		
Conversion of aldoses to ketoses	2		
Conversion of ketoses to aldoses	2		
Structure of disaccharides, Maltose, lactose, celloloiose, sucrose	2 2		
Melibiose, trehalose, gentiobiose	2		
Structure of trisaccharides, cellotrinose,	2		
Raffinose, structure of starch	2		
Structure of cellulose and its use in industry	2		
Disaccharides , elucidation of structure	6		

4– Teaching and learning methods

4.1- Lectures

5- Graduate assessment methods

5.1- oral to assess the understanding

5.2 - Mid term to assess the med term performance

5.3 – Final term to assess the final term performance

Assessment schedule

Assessment 1 oral week every two weeks

Assessment 2 mid-term week 7th weeks

Assessment 3 final-term week 14th weeks

Weighting of assessments

Mid-Term Examination (written + practical) 20 %

Final-term Examination (written + practical) 60 %

Oral Examination. 20 %

Semester Work (written + practical)

Other types of assessment

Total 100%

Any formative only assessments

6- List of references

6.1- text book of organic chemistry (Vogel)

6.2- "Lehninger Principles of Biochemistry", 2005, Nelson and Cox, 4th ed

6.3. Erratum: Functional Annotation of Fibrobacter succinogenes S85 Carbohydrate Active Enzymes

Phillip Brumm, David Mead, Julie Boyum… in Applied Biochemistry and Biotechnology (2011*)*

7- Facilities required for teaching and learning

over head projectors

Course coordinator: Prof. Dr. / Hamed Abdel-Bary

Head of Department: Prof. Dr. / Adel Nassar

Date: / / 2013