**University: Benha** **Faculty of Science**

**Course specifications:**
**Programme (s) on which the course is given:** Biology
**Major or minor element of programmes:** Major
**Department of offering the programme:** Biology
**Department offering the course:** chemistry
**Academic year /Level:** 2nd year 2nd term
**Date of specification approval:** 2008

**A – Basic information**
**Title:** physical chemistry **Code:** 241 CH
**Credit Hours:** **Lecture:** 2 hours / week
**Tutorial:** 1 hr/w **Practical:** **Total:** 3 hrs/w

**B – Professional Information**
**1. Overall aims of course: At the end of this course the student able to:**
At end of this course student able to:
Focusing on the bases of physical chemistry, gas laws, thermochemistry and electrochemistry

**2. Intended learning outcomes of course (ILOS)**
**a- Knowledge and understanding:**
At end of this course student able to:
a1- Make the ideal and real gas laws.
a2- Know the laws of thermochemistry.
a3- The basic concepts of electrochemistry

**b- Intellectual skills:**
To be able to:
b1- understand the gas behavior.
b2- aware about the laws of thermodynamics.
b3- know how the galvanic cells work.

**c- Professional and practical skill:**
By the end of the course the student will be able to:
c1- solve the problems regarding gas phase.
c2- define the endothermic or exothermic nature of the chemical reaction.
c3- calculate the emf of galvanic cell and the electrochemical reaction of electrolytic cell
.
**d- General and transferable skills:**
d1- Use the computer
d2- Communicate with topics and internet
d3- Community linked thinking

**3. Contents**

| Topic | No. of hours | Lecture | Tutorial |
|---|---|---|---|
| Gas laws | 12 | 8 | 4 |
| thermochemistry | 12 | 8 | 4 |
| Electrochemistry | 12 | 8 | 4 |
| Total | 36 | 24 | 12 |

**4. Teaching and Learning methods:**

4.1- lectures

**5. Student assessment methods**

5.1 Discussions to assess applying and evaluating the information
5.2 Practical to assess the acquired profession skills
5..3 Mid term exam to assess understanding **intellectual** skills
5.4 End of term exam to assess knowledge with understanding

**2-Assessment Schedule**

Assessment 1: Discussions Week 1-12
Assessment 2: Essay Week 3
Assessment 3: Mid term Week 7
Assessment 4: Final exam Week 14

**Weighting of assessments**

Mid term examination 5 %
Final term examination 80%
Oral examination 5%
Practical examination %
Semester work 5 %
Other types of assessment 5 %
Total 100%
Any formative only assessments

**6. List of references**

**6.1- Course notes:** Hand out notes
**6.2-Essential text books:** physical chemistry
R. A. Alberty, "physical Chemistry" 7th Ed. John Wiley & Sons 1992.
- W. J. Moore "Physical Chemistry"; Prentice-Hall, 1983.

**6.3- Recommended books**

R. A. Alberty, "physical Chemistry" 7th Ed. John Wiley & Sons 1992.
- W. J. Moore "Physical Chemistry"; Prentice-Hall, 1983.

**6.4-Periodicals**
**6.5- Web sites:** www. sciencedirect.com
**6.7- workshop notes**

## 7. Facilities required for teaching and learning

Data show- computer - projector and other recent text books (hard version, an electronic form and video practical courses)

**Course coordinator:** Dr.\ Ali yousry El-Etre
**Head of Department:** Prof. Dr.\ Hassan A. Desoki
**Date:**