

Course Specifications

Programme(s) on which the course is given M.SC. Chemistry

Major or Minor element of programmes: Major

Department offering the programme: Chemistry

Department offering the course: Chemistry

Academic year / Level: 2012

Date of specification approval: 2012

A- Basic Information

Title: Quantum chemistry	Code: CH615 and CH6115
Credit Hours:2h	Lecture:2h
Tutorial: 0	Practicals:0
	Total: 2h

B- Professional Information

1 – Overall Aims of Course: providing the students the basic principles of quantum chemistry

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- a1-define Uncertainly principle of Heisenberg
- a2- present Schrodinger equations – molecular orbital theory
- a3- apply the Schrödinger equation in particle in box ,harmonic oscillator and the hydrogen atom

b- Intellectual Skills

- b1-** identify application on Schrödinger equation
- b2 –predict the formation of new molecules
- b3-explain the theoretical reasons for formation of molecules

c- Professional and Practical Skills

- c1-**Learning the students the applications of electrochemistry in different fields

c- General and Transferable Skills

- d1-**Proplem solving
- d2-Enhancing the written and oral communications capability

- 3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Uncertainly principle of Heisenberg	3	3	0
Schrödinger equation	3	3	0
Application on Schrödinger equations	3	3	0
Molecular orbital theory	3	3	0

4– Teaching and Learning Methods

4.1-lectures

4.2- discussion

5- Student Assessment Methods

5.1 written examination to assess the understanding

5.2- practical exam to assess the performance

Assessment Schedule

Assessment 1 short exam (class activities)

Week every two weeks

Assessment 2 mid-term (written)

Week 8

Assessment 3 final-term (written)

Week 14

Weighting of Assessments

Mid-Term Examination 20%

Final-term Examination 60%

Semester Work 20%

Total 100%

6- List of References

6.1- Course Notes

prepared in the form of book authorized by department

7- Facilities Required for Teaching and Learning

overhead projector, data show and computer

Course Coordinator: Prof. Dr. Ahmed ElNahas

Head of Department: Prof. Ahmed Abd-Elmgd

Date: 2012

University Menoufia

Faculty of Science