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

Course Specifications

**Programme(s) on which the course is given** Chemistry

**Major or Minor element of programmes: Chemistry**

**Department offering the programme : Mathematics**

**Department offering the course : Mathematics**

**Academic year / Level : Third year (Chemistry) /First Semester**

**Date of Department approval : 2008**

## A- Basic Information

**Title: Computer Science** **Code: 230 M**

**Credit Hours:** **Lecture:1 hrs/week**

**Tutorial: 1** **Practical:** **Total: 2 hrs**

## B- Professional Information

**1 – Overall Aims of Course: At the end of this course the student able to:**

**i) - Study graphs theory.**

**ii) Know graphs, digraphs, trees, Eulerian graphs and Euler's formula.**

**iii) Apply on graphs (shortest path and graph coloring).**

**2 – Intended Learning Outcomes of Course (ILOs)**

**a- Knowledge and Understanding:**

**a1- Develop the ability of the student to deal with graphs.**

**A2- Study some theorems about graphs.**

**A3- Find shortest path of connected graph and coloring graphs.**

**b- Intellectual Skills**

**b1- Use of basic principles to find the properties of graphs.**

**B2- Make discussion concerning assigned problems**

**b3- Extend of mental ability for the student**

**c- Professional and Practical Skills**

**c1- Develop the ability of the student to relate between topics**

**c2- Apply what was studying in the previous courses**

**c3- Develop the capability of the student for thinking**

**d- General and Transferable Skills**

**d1- Solve problems**

**d2- Work in groups**

**d3- Analysis of results**

**3- Contents**

| Topic | No. of hours | Lecture | Tutorial/Practical |
|---|---|---|---|
| Graphs, digraphs, degree | 4 | 2 | 2 |
| Connected graphs, Elerian graphs | 4 | 2 | 2 |
| Trees, properties of trees | 4 | 2 | 2 |
| Euler's formula, nonplaner graph | 4 | 2 | 2 |
| Graph coloring | 8 | 4 | 4 |

**4– Teaching and Learning Methods**

**4.1- Lecturing**

**4.2- Discussions**

**4.3- Exercises**

**4.4- Homework**

**5- Student Assessment Methods**

**5.1 Discussions to assess applying and evaluating the information**

**5.2 Essay to assess understanding**

**5.3 Mid term exam to assess understanding**

**5.4 End of term exam to assess knowledge with understanding**

**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** | **10%** |
| **Final-term Examination** | **80%** |
| **Oral Examination.** | **5%** |
| **Practical Examination** | **%** |
| **Semester Work** | **5%** |
| **Other types of assessment** | **%** |
| **Total** | **100%** |

**Any formative only assessments**

**6- List of References**

**6.1- Course Notes**

**6.2- Recommended Books**

Computational Mathematics, B. P. Demidovich, I. A. Maron, Mir Publishers Moscow, 1987

6.4- Periodicals, Web Sites, … etc

Science direct, google.com; Chemweb.com

**7- Facilities Required for Teaching and Learning**

**Course Coordinator:** Dr. Mahmoud Moussa

**Head of Department:** Prof. Dr. Effat Abbas

**Date:**