University: Benha **Faculty of Science**

Course Specifications

Programme(s) on which the course is given . Chem/Phys

Major or Minor element of programmes: Major

Department offering the programme : Chemistry

Department offering the course : Mathematics

Academic year / Level : Second year(Chem.,phys) /First Semester

Date of Department approval : 2008

A- Basic Information

Title: Mathematics **Code: 205 M**
Credit Hours: **Lecture:2hrs/week**
Tutorial: 1 **Practical :** **Total:3 hrs**

B- Professional Information

   1 – Overall Aims of Course: At the end of this course the students able to:
      i) - Know and understand the concepts of functions of several
         variables , the partial derivatives , the total derivative and multiple
         integrations and able to convey the meaning of the concept to others
      ii) -Study the differential equations of order one
      iii) - Study the differential equations of order greater than
            one and some special integrations

   2 – Intended Learning Outcomes of Course (ILOs)

      a-Knowledge and Understanding:
            a1- Know and understand the differential equation of
               first degree and of order greater than one and the methods to
               find it's solution
            a2- Understand Differentiation and Interation of function of more
               than one variable
            a3- Able to apply the concepts on various

applications

b-Intellectual Skills

b1- Know and understand the fundamental concepts of the partial differential and multiple integrations

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
The concepts of functions of several Variables and Taylor's expansion	6	4	2
the partial derivatives , the total derivative	3	2	1
Multiple integrations and it's applications	9	6	3
The differential equations of order one	9	6	3
The differential equations of order greater than one and some special integrations	9	6	3

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- Essential Books:

Mathematical Analysis, V. B. Uvarov, Mir Publishers Moscow, 1988

6.3- Recommended Books

Mathematical Analysis, V. B. Uvarov, Mir Publishers Moscow, 1988

6.4- Periodicals, Web Sites, … etc

Science direct, google.com

7- Facilities Required for Teaching and Learning

Course Coordinator: Dr.Sohar Abdul El_gavar

Head of Department: Prof. Dr. Effat Abbas