University: Benha   **Faculty of Science**

Course Specifications:
Programme(s) on which the course is given: **Biology**
Major or Minor element of programmes: Mathematics
Department offering the programme: Biology
Department offering the course: Mathematics
Academic year / Level: Second year (Biology) / Second Semester
Date of Department approval: 2008

A- Basic Information

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

B- Professional Information

1.   Overall Aims of Course: At the end of this course the student able to:
i) -Student will 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) -Student will be study the differential equations of order one
iii)- Student will be study the differential equations of order greater than one and some special integrations

2.   Intended Learning Outcomes of Course (ILOs)
a- Knowledge and Understanding:
Make student able to
a1- Have Knowledge and understanding the differential equation of first degree and of order greater than one and the methods to find it's solution.
a2- Understand Differentiation and Integration of function of more than one variable.
a3- Apply the concepts on various applications.

b- Intellectual Skills
Make student able to
b1- know and understand the fundamental concepts of the partial differential and multiple integrations.
b2- Make discussion concerning assigned problems.
b3- Make Extension of mental ability for the student.

c- Professional and Practical Skills
Make student able to
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
Make student able to

d1- Use the computer
d2- Communicate with topics and internet
d3- Community linked thinking
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3.   Contents

Topics	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
Total	36	24	12

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 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   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:**
Manual note

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:** www.sciencedirect.com

7.   **Facilities Required for Teaching and Learning**
8.   **Course Coordinator:** Dr.\ Ahmed Abdelkhalek

Head of Department: **Date:**