Relevant Program: B.Sc. (Science & Education), Mathematics ,Basic Education
Major or minor element of programmes : Major

Department offering the program: Educational Depts. + Math Department
Faculty of Science
Department offering the course: Mathematics

Academic year / Level: First Year   (Second Term)

Date of specification approval : 20 / 10 / 2008

A- Basic Information

Title   Calculus 1   Code： ١٧١٢١ Mat

Credit Hours----   Lecture: 4

Tutorial: 2   Practical: Total: 84

B- Professional Information

1- Overall Aims of Course

1-Understand the concept and properties of limits, differentiation and integration.

2-Student will know and understand various techniques for differentiating, integrating and finding limits of functions.
3-Student will be able to apply the concepts on different topics.

2- Intended Learning Outcomes of Course (ILOs)

In the end of the programme the students should able to:

A- Knowledge and understanding: A- Knowledge and understanding:

١ - أ. : know and understand the fundamental concepts and properties of limit,

differentiation and integration

٢ – ١.أ. know various techniques for differentiating, integrating and finding limits of functions.

B- Intellectual Skills:

١ - ب. : illustrate applications of the methods.

١ - ٢.ب: Show mathematical thinking for students to be self independent in problem solving.

C- Professional and Practical Skills:

ث. - ١ : solve Training problem and studying in small teams.

ث.١ – ٢ : apply the conce pts on different topics.

D- General and Transferable Skills:

ت. - ١ : Use new technological tools.

ت.١ – ٢ : work with others to solve mathematical problems.

ت.٥ – ١ : convey the meaning of these concepts to others.

3- Contents:

Topic	No. of Hours	Lecture	Tutorial / Practical
1-Introduction: (Sets of real numbers- Real line- inequalities-Intervals-Absolute values).	16	4	8
2-Functions: Definition of function-Properties of functions-Operations on functions-Classification of functions.	16	4	8
3-Limits and Continuity: (Concepts of limits-Techniques for finding limits-One sided limits Natural logarithm-Hyperbolic functions and it's inverse-Continuity on interval- One sided continuity-Theorems on continuity).	8	2	4
4-Derivatives: (Definitions and geometric meaning of derivative, Techniques of differentiation ,Derivative of some elementary functions, Higher derivatives, Application).	8	2	4
5-Integral: (Definitions and properties of definite integral, indefinite integral-Fundamental theorems of calculus).	8	2	4

4- Teaching and Learning Methods:

4-1: Lectures.

4-2: Discussion sessions.

4-3: Research Assignments.

5- Student Assessment Methods:

5-1: Written exam (mid-term)to assess the level of knowledge and understanding.

5-2: Class work (quizzes) to assess the level of Intellectual skills to discuss and solve some problems .

5-3: Written exam (at the end of term) to assess the ability to pass the exam .

Assessment Schedule:

Assessment 1: Written exam (mid-term) Week 7

Assessment 2: Class work (quizzes) Week 4 - 8 - 12

Assessment 3: Written exam (at the end of term) Week at the end term .

Weighting of Assessments:

Mid-Term Examination	30	%
Final-Term Examination	70	%
Oral Examination		%
Practical Examination		%
Semester Work		%
Other Types of Assessment		%
Total:	100%	

Any formative only assessments: Homeworks

6- List of References:

6-1: Course Notes:

Course note prepared by staff members of Math. Deptment.

6-2: Essential Books (Text Books):

6-3: Recommended Books:

Harcout Javanavch. Rebertellis, Denny Gulicky 1982, Calculus with analytics

geometry.

6-4: Periodicals, Web Sites… etc:

http://mathworld.wolfram.com/topics/calculus.html

7- Facilities Required for Teaching and Learning

Library contains new edition books with enough copies.

Computer Lab

Internet networks

Course Coordinator: Dr. Badr el-dan ali

Head of Department Prof. Kamal Ahmed El Dab

Date: / /