KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS

SYLLABUS OF MATH 132 : APPLIED CALCULUS

(Summer Semester: 093 (2009 – 2010): Saturday, July 03 – Saturday, August 28, 2010)

Dr. Raja Mohammad Latif. Office:5-327, Phone#(03)860-3720, E-mail: raja@kfupm.edu.sa.

Secion # 01; Class Meetings: S – U – M – T – W: 10:30 AM – 11:30 AM; Location: 59 – 2001.

Office Hours: Saturday, Sunday, Monday, Tuesday & Wednesday: 12:10 P.M. – 01:00 P.M.

Textbook: *Introductory Mathematical Analysis for Business, Economics, and the life and Social Sciences,* by Ernest F. Haeussler, Jr. Richard S. Paul & Richard J. Wood, 12th Ed. Pearson,2008.

MATH 132 Applied Calculus (3-0-3)

The derivative. Rules for differentiation. Derivative of logarithmic, exponential, and trigonometric functions. Differentials. Growth and decay models. Definite and indefinite integrals. Techniques of integration. Integrals involving logarithmic, exponential and trigonometric functions. Integration by tables. Area under a curve and between curves. Functions of several variables. Partial derivatives and their applications to optimization.

Prerequisite: One year preparatory mathematics or its equivalent

Objectives: To provide a mathematical foundation for students in business, economics, and the life and social sciences.

Exam Questions: The questions of the exams are based on the examples, homework problems, lecture notes problems and the exercises of the textbook.

Missing one of the Two Common Major Exams I or II: No makeup exam will be given under any circumstances. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.

Attendance: A DN grade will be awarded to any student who accumulates 08 unexcused absences.

Academic Integrity: All KFUPM policies regarding ethics apply to this course.

Tips on how to enhance your problem-solving abilities: 1. Please do all the homework assignments regularly on time. 2. You are urged to practice (but not memorize) more problems than the above lists. 3. You should always try to solve a problem on your own before reading the solution or asking for help. 4. If you find it difficult to handle a certain type of problems, you should try more problems of that type. 5. You should try to read definitions and do examples before coming to class. 6. You are encouraged to solve some of the review problems at the end of each chapter. 7. The practice you get doing homework and reviewing the class lectures and solved examples in the textbook will make exam problems easier to tackle. 8. Try to make good use of the office hours of your instructor.

Important Notes: It is the student's responsibility to keep informed of any announcement, syllabus adjustment or policy changes made during scheduled classes. *. Saturday, July 10, 2010: Last day for dropping courses(s) without permanent record. **. Wednesday, July 28, 2010.: Last date for dropping course(s) with grade of "W" thru web at http://regweb.kfupm.edu.sa. ***. Wednesday, August 04, 2010.: Last date for withdrawal from all courses with grade of "W" thru web at http://regweb.kfupm.edu.sa. ****. Wednesday, August 18, 2010: Last date for withdrawal from all courses with grade of "WP/WF" thru the University Registrar Office.

Class Work (75 Marks): Quezzes & / or Test(s): (10 %) and Home Work & Attendance: (5 %).

Wk	Date	Section		Homework – Due Dates
1	July 03 To July 07	10.1 10.2 10.3 11.1 11.2	Limits Limits (cont'd) Continuity The derivative Rules for differentiation	10July: 4, 17, 18, 24, 30, 33, 42, 43 10J.;2, 15, 23, 36, 37, 42, 52, 56, 57, 64 11J.: 5, 11, 12, 20, 23, 28, 30, 32, 33, 34 12July: 8, 16, 17, 18, 20, 22, 26, 27, 28 13July: 21, 22, 33, 35, 56, 60, 66, 72, 74, 76, 78, 84, 85, 87, 89
2	July 10 To July 14	11.3 11.4 11.5 12.1	The Deri.-Rate of Change Product & Quotient Rules The chain rule & the power rule Derivative of logarithmic functions	14J.: 8, 12, 16, 22, 26, 27, 32, 38, 39, 41 17J:10,16,31,37,50,54,58,62,68,71,72,73 18July: 8, 10, 12, 16, 22, 24, 27, 38, 44, 46, 50, 61, 71, 74, 81 19July: 10, 18, 20, 26, 32, 46, 49, 50, 51
3	July17 To July 21	12.2 12.4 12.5 12.7 13.1	Derivative of Exp. Fun. Implicit differentiation Logarithmic differentiation Higher order derivative Relative Extrema	20J: 7, 18, 20, 23, 26, 30, 32, 37, 46, 50 21July: 10, 12, 20, 24, 26, 28, 29, 34, 38 24July: 8, 12, 16, 21, 22, 25, 26, 27 25J.: 6, 12, 16, 20, 22, 30, 34, 37, 38, 39 31J.: 2, 7, 19, 30, 40, 52, 62, 64, 65, 68
Exam I: (Written) Dated: Tuesday, July 27, 2010. (Chapters: 10, 11 & 12). (125 Marks)				
4	July 24 To July 28	13.2 13.3 13.4 13.5 13.6	Absolute extrema - closed int Concavity The second-derivative test Asymptotes Applied maxima and minima	31July: 2, 6, 8, 10, 12 1A.: 14, 20, 30, 34, 40, 47, 58, 62, 66, 67 02Aug.: 2, 4, 6, 8, 10, 12 03A:10, 14, 16, 22, 24, 30, 38, 46, 49, 52 04August: 2, 6, 11, 14, 16, 18, 22, 26, 30, 33, 41
5	July 31 To Aug 04	14.1 14.2 14.3 14.4 14.5	Differentials The indefinite integral Integration w. initial conditions More integration formulas Techniques of integration	7A: 9,12,18, 22, 26, 32,34, 37, 40, 43, 45 8A:10,16,20,28,30, 36, 42, 47, 48, 52, 54 09A: 2, 4, 6, 8, 10, 12, 14, 16, 18, 21, 22 10A: 9,15,19,26,35, 43,53,61,70,75, 82,84 11A: 6,18,25,30,35,44,48, 53, 55, 63, 65
6	Aug 07 To Aug 11	14.7 14.9 14.10 15.1 15.2	The fund. theorem of Int. Area Area between curves Integration by parts Integration by Tables	14A: 9,16,26,32, 36,39,43,44, 48, 59, 61 14Aug.: 9, 15, 20, 24, 28, 29, 30, 34, 35 15Aug:1, 5, 7, 12, 15, 21, 30, 32, 34, 37 16A:2,6,8,12,18,20,22, 24,28,30,36,40,42, 44, 49,54 21A:2,4,6,8,10,12,14,16,18,20,22,24,26,28,30, 32,34,36,38,40,42,44,46,48,50,52,54,56
Exam II (MCQ): Monday, August 09, 2010. Material: (Ch: 13 & 14.1 – 14.7). (125 Marks)				
7	Aug 14 To Aug 18	** 17.1 17.2 17.5	Trigonometric (Handout) Functions of several variables Partial derivatives Higher Ord. Part. Deri,	Derivatives and Integrals of Trig. Func. 17A: 2, 5, 6, 10, 12, 15, 16,17,21, 23, 28 18A: 6,11,16,18,20,25, 28, 31, 33, 34, 35 21A: 6, 9,10, 12, 15,77,20, 21,22, 23, 24
8	Aug 21 – 23, 10	17.7	Maxima and minima for functions of two variables	22August: 4, 8, 15, 19, 20, 22, 23, 26, 27, 29, 34.
Final Exam: Tuesday, August 24, 2010. 12:30 P.M. Material: Comprehensive (175 Marks)				