## **GRANDE PRAIRIE REGIONAL COLLEGE**

# MATH 2140 A2 - Fall 2004

- Title Intermediate Calculus I
- Schedule
   Lecture
   A2
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   R
   1:00 p m 2:20 p m
   J204

   Seminar
   AS1
   F
   2:30 p m 3:20 p m
   J204
- Instructor Dr Subhash Karnik Office J206 Phone 539 - 2093 e-mail : karnik@gprc.ab.ca
- <u>Textbook</u> i) Single Variable Calculus, 5th Edition, James Stewart - Brooks/Cole Publishing Company ii) Student Solutions Manual, Volume Two for the above book (optional)
- <u>Grading</u> Quizzes 15 % Seminar Assignments 10 % Mid-term Exam 25 % Final Exam 50 %

Exam Schedule

Mid-term Exam Thursday October 21, 2004 1: 00 p m - 2: 20 p m (Tentative)

<u>Final Exam</u> as per Registrar's Schedule to be published in December 2004.

Students must write the Exams at the scheduled times.

Turn over . . .

#### MATH 2140 - COURSE DESCRIPTION

MA 2140 3 (3 – 1 – 0) UT 60 Hours

**Intermediate Calculus I** 

MA 1150 is a pre-requisite for this course.

#### From Alberta Transfer Guide 2003 – 2004 :

In the Province of Alberta this course is transferable as follows :

Athabasca	MATH 3xx(3)	Augustana UC	MAT 211(3)
Canadian U	C MATH 261(3)	Concordia UC	MAT 214(3)
King's UC	MATH 3xx(3)	U of A	MATH 214(3)
U of C	MATH 331(3)	U of L	MATH 2570(3)

### The following topics are covered in this course :

Infinite sequences. Convergence and divergence of infinite series. Positive term series. Tests for convergence such as the integral test, comparison test, ratio test and root test. Alternating series. Alternating series test. Absolute, conditional convergence and relevant tests. Power series. Radius and interval of convergence of power series. Representation of functions as power series. Taylor and Maclaurin series.

Plane curves. Tangent lines to curves. Curves defined by parametric equations. Polar co-ordinate systems. Polar equations of conics. Areas in polar co-ordinates. Lengths of curves.

Vectors in two and three dimensions. Vector product. Lines in space. Planes. Cylinders and surfaces of revolution. Quadric surfaces. Cylindrical and spherical co-ordinates.

Functions of several variables. Limits and continuity. Partial derivatives. Increments and differentials. The chain rule. Directional derivatives and gradient vector. Tangent planes and normal lines to surfaces. Extrema of functions of several variables. Lagrange multipliers.