A: Division: **Educational and Student Services** Date: **September 26, 1994.**

B: Department: **Student Services & Developmental Education** New Course:

Program: Revision of Course Information form: **X October 8, 1989.**

| C: | D: | E: |
|---|---|---|
| **DVST 410** | **Mathematics II** | **4.5** |
| Subject & Course No. | Descriptive Title | Semester Credit |

F: Calendar Description:

The course deals with a variety of topics in algebra, geometry and trigonometry including number and number operations such as radicals with integer radicands; combined operations with integral and variable bases and exponents; extension of polynomial operations, rational expressions and operations, factoring to include combinations of types; review of equation solving and problems leading to linear and quadratic equations; linear equations and systems in two variables solved by substitution an the multiplication method; geometry problems with "special" triangles and a review of trigonometry.

Summary of Revisions: (Enter date & section) Eg: Section C,E,F

**1994-09-26 F**

G: Type of instruction: Hrs per week / per semester

| | | |
|---|---|---|
| Lecture: | | Hrs. |
| Laboratory: | | Hrs. |
| Seminar: | | Hrs. |
| Clinical Experience: | | Hrs. |
| Field Experience: | | Hrs. |
| Practicum: | | Hrs. |
| Shop: | | Hrs. |
| Studio: | | Hrs. |
| Student Directed Learning: | | Hrs. |
| Other (Specify)* | | |
| *Instructor directed learning | 6 | Hrs. |
| Total: | 6 | Hrs. |

H: Course Prerequisites:

**DVST 310 or permission of instructor**

I: Course Corequisites:

J: Course for which this Course is a Prerequisite:

**DVST 411**

K: Maximum Class Size:

**20**

L:

| | |
|---|---|
| College Credit Transfer | |
| College Credit Non-Transfer | x |
| Non-Credit | |

M: Transfer Credit: Requested: x *

Granted:

Specify Course Equivalents or Unassigned Credit as appropriate:

U.B.C.
S.F.U.
U. Vic.
Other:

* As math requirement for business diploma programmes at Douglas College.

Gordon Dunstan
Course Designer(s)

Divisional Dean

Director/Chairperson

Registrar

N. Textbooks and Materials to be Purchased by Students (Use Bibliographic Form):

**Required Text: Klassen. Introductory Mathematics 11. Nelson Publishing**

**or suitable alternative**

Complete Form with Entries Under the Following Headings: O. Course Objectives; P. Course Content; Q. Method of Instruction; R. Course Evaluation

O. Course Objectives:

The aims of the course are for students to:

1. consolidate and extend experience with algebra, geometry and trigonometry for subsequent courses in mathematics;
2. learn to apply basic operations to radical expressions with numerical radicands and to rational expressions with monomial and polynomial denominators;
3. apply the rules for exponents in multi-staged simplifications;
4. extend skills with factoring to include expressions which are a combination of standard types;
5. increase facility in the solution of linear and quadratic equations which are derived from word problems;
6. derive linear equations from graphs and vice versa and develop non-graphing strategies to solve systems of linear equations;
7. increase reasoning skills by solving triangle problems and by completing guided proofs of congruency.

P. Course Content

The course consists of the following topics:

1. Number and Number Operations
   a. review of operations with rationals and the order of operations
   b. combined operations with integral bases and exponents:

      $a^m \times a^n$, $a^m \div a^n$, $(ab)^m$, $(a/b)^m$, $(a^m)^n$, $a^{-m}$, $a^0$

   c. simplification and evaluation of radicals with numerical radicands - simplest radical - and decimal form
   d. addition, subtraction, multiplication and division of radicals with numerical radicands

2. Algebra
   a. combined operations with variable bases and integral exponents
   b. review of polynomial operations including binomial X trinomial, binomial X binomial X binomial, powers of binomials
   c. review of factoring: GCF, difference of squares, general trinomials
   d. combinations of types of factoring
   e. simplification of rational expressions with monomial denominators
   f. operations with rational expressions with monomial denominators
   g. simplification of rational expressions with polynomial denominators by factoring

2. Algebra (continued)
   h. multiplication and division of rational expressions requiring factoring
   i. excluded values for rational expressions
   j. linear equations and inequalities in one variable: variable on both sides of the equation, with brackets, with rational coefficients
   k. problems using linear equations
   l. solving quadratics using factoring and the square root principle
   m. problem solving using quadratic equations.

3. Analytic Geometry
   a. determination of the slope and intercepts of a graph
   b. zero and undefined slopes, equations of these lines
   c. rearrange linear equations: standard form and slope intercept form
   d. graphing from slope intercept form: equations and inequalities
   e. deriving the equation of a line
   f. solving systems - graphing, substitution, multiplication/addition methods
   g. problems using systems of linear equations

4. Geometry
   a. "special" triangles
   b. angle problems: triangles, quadrilaterals, parallel lines, intersecting lines
   c. guided proofs that angles and segments are congruent, that lines are parallel
   d. guided proofs that triangles are congruent: SSS, SAS, ASA

5. Trigonometry
   a. review of trig ratios: tangent, sine, cosine
   b. solution of right triangle problems

Q. Method of Instruction

A combination of different instructional methods will be used in order to balance instructional efficiency with individual student needs. Group instruction, individual assistance in lab tutorial or scheduled appointments and student-directed learning will be selected where appropriate and possible.

R. Course Evaluation

Evaluation will be based on examinations and assignments in accordance with college policy. Details regarding the number and weighting of individual components will be announced in a "Course Information" handout at the beginning of the semester.

Grades will be assigned as follows:

| | | | |
|---|---|---|---|
| A+ 92-100% | B+ 77-91% | C+ 62-66% | P 50-52% |
| A 87-91% | B 72-76% | C 57-61% | F 0-49% |
| A- 82-86% | B- 67-71% | C- 53-56% | |