INSTITUTE OF MATHEMATICS
College of Science
University of the Philippines Diliman

Math 20 Course Syllabus

A. Course Catalogue Description

Course Number	Math 20
Course Title	Precalculus: Functions and their Graphs
Course Description	Equations and inequalities; two dimensional coordinate system, graphs of equations; conic sections; functions and their graphs; trigonometric functions and trigonometric identities; inverse trigonometric functions; solutions of triangles; polar form of complex numbers
Prerequisite	High School Algebra/equiv.
Course Credit	(4) units
Number of Hours	4 hours/week

B. Course Content

I. Equations and inequalities

    1. Review of equations

        a. Linear, quadratic, rational, and radical equations

    2. Inequalities

        a. Linear, polynomial, and rational inequalities

        b. Equations and inequalities involving absolute value

II. Two dimensional coordinate system & graphs of equations

    1. Review of Cartesian coordinate system, midpoint and distance formulas

    2. Lines and circles

III. Conic sections

    1. Parabola

    2. Ellipse

    3. Hyperbola

IV. Systems of equations and inequalities

    1. Review of linear systems

    2. Non-linear systems

V. Functions

    1. Functions and relations

    2. Domain and range

    3. Operations on functions

    4. Graphs and types of functions

VI. Polynomial, exponential, and logarithmic functions

    1. Polynomial functions and their zeros

    2. Inverse functions

    3. Exponential functions

    4. Logarithmic functions

VII. Trigonometric functions

    1. The point function

    2. Circular functions

    3. Graphs of circular functions

    4. Angles and their measure

VIII. Trigonometric identities

    1. Basic identities

    2. Sum, difference, and cofunction identities

    3. Double angle and half angle identities

    4. Product to sum and sum to product identities

IX. Trigonometric equations and inverse trigonometric functions

    1. Trigonometric equations

    2. Inverse trigonometric functions and equations involving inverse trigonometric functions

X. Solutions of triangles

    1. Law of sines and law of cosines

    2. Solutions of right triangles

    3. Solutions of oblique triangles

    4. Applications (word problems)

XI. Polar form of complex numbers

    1. Review of complex numbers

    2. Rectangular and polar form of complex numbers

    3. Products, quotients, and powers of complex numbers in polar form, De Moivre's theorem

    4. Roots of complex numbers

For a more detailed syllabus, send an email request to ddapr@math.upd.edu.ph.