MNCC-317   Mathematics-I* (For Pre-Medical Students)

Contact Hours: 3(0+0)

Prerequisites: Nil

Course Objectives: The objective of this course is to make student able to understand and formulate real world problems into mathematical statements, develop solutions to mathematical problems at the level appropriate to the course and describe mathematical solutions either numerically or graphically.

Learning Outcomes: This is an introductory course on discrete mathematics. Students will learn:

➢ Some fundamental mathematical concepts about real and complex numbers;

➢ How to form a sequence in structure and present its analysis;

Course Contents:

Introduction to set, Real and complex numbers, complex conjugate, modulus, Matrices, results and examples, Determinant results and examples, Vectors definitions, sum, difference and product of vectors, Applications of vectors and related results, sequences, athematic sequence and mean, Geometric and Harmonic Progressions, Geometric and Harmonic means and relationship between them with examples, Series, and tests for convergence, Mathematical induction and Binomial theorem, function and graphs, different types of function and its graph sketching, trigonometric identities, applications of trigonometry, graphs of trigonometric function and inverse trigonometric function,

Recommended Books:

1) *Thomas, Calculus, 11th Edition. Addision Wesley Publishing Company, 2005*
2) *H. Anton, I Bevens, S. Davis, Calculus, 8th Edition, John Wiley & Sons, Inc.2005*
3) *Hughes-Hallett, Gleason, McCallum, et al, Calculus Single and Multivariable, 3rd Edition. John Wiley & Sons, Inc. 2002.*
4) *Frank A. Jr, Elliott Mendelson, Calculus, Schaum's outlines series, 4th Edition, 1999*
5) *C.H. Edward and E.D Penny, Calculus and analytics Geometry, Prentice Hall, Inc. 1988.*

MNCC-327   Mathematics-II* (For Pre-Medical Students)

Contact Hours: 3(0+0)

Prerequisites: Nil

Course Objectives:

➤ This course covers the concepts of functions, limit, continuity, differentiation, integration of function of one variable; logarithmic, exponential, applications of derivatives and antiderivatives, differential equations, vector anf applications, partial derivatives and multiple integration. The objective of this course is to make student able to understand and formaulate real word problems into mathematical statements, develop solutions to mathematical problems at the level appropriate to the course and describe mathematical solutions either numerically or graphically.

Learning Outcomes: This is an introductory course on discrete mathematics. Students will learn:

➤ Some fundamental mathematical concepts about derivatives and integration;
➤ Will know about the application of these concepts and how to utilize it.

Course Contents:

Introduction, representing function of one variables, Polynomial, Trigonometric, Exponential and Logarithmic functions, range and domain of functions and their graphs. Precise definitions of Limits and Continuity, Limits at infinity, Continuity, Horizontal asymptotes, Tangents and velocity, Rate of change, Review of Derivative, Differentiability of a function, Mean value theorem, Indeterminate forms and L-Hospital Rule, Curve sketching, Review of maxima and minima of one variable, Optimization problems,

Review of Antiderivatives, Rectilinear motion, Indefinite integrals and Net change, Define integral, The fundamental theorem of calculus, Improper integrals, Areas between the curves, Volume of cylindrical cells, Approximate Integrations, Arc length, Area of surface of revolution, Limit and Continuity, Partial and Derivatives, Tangent planes, Maximim and minimum Values, Multiple integrals.

Recommended Books:

1) *Calculus Early Transcendentals, James Stewart, 7E, CENGAGE Learning*
2) *Calculus Early Transcendentals, Thomas, 12th Edition, Addison Wesley*
3) *E.W. Swokowski, Calculus with Analytic Geometric, PWS Publishers, Boston, Massachusetts, 1983*
4) *M. Liebeck A Concise introduction to pure Mathematics, CRC Press, 2011*
5) *A. Kaseberg, Intermediate Algebra, Thomson Brooks/cole, 2004.*