

Department of Physical Science
 School Of Engineering and Computer Science
 Independent University, Bangladesh

Course Outline for Basic University Mathematics - II

Course No : MAT 210

Section : 01

Semester : Spring 2016

Office: Room # 6005

Instructor : Dr. Ahmad Mostofa Kamal

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Tutorial Hours : S, M, T, W 12.40pm– 1.40 pm, or by appointment

This is one of the courses offered by the university, which fulfils the requirement of “Numeracy” for graduation from the University. This course is mandatory for the students who wish to major in any Liberal Arts subject. The course forms a one-year standard course in University Mathematics. The prerequisite for this course is MAT 100. It is expected that the students have a fair amount of background in school mathematics.

Assessment and Grading Procedures

Students are required to come to the class on time. None will be allowed to enter the class later than 5 minutes from the start of the class. Students are requested to follow the attendance policy strictly which has been set by the university.

Home assignment and problems will be assigned for practice, regularly. Students must submit the assignment within due date declared by faculty. Assessment will be based on the following weighting:

Midterm Exam – I	: 25%
Midterm Exam – II	: 25%
Attendance	: 10%
Final Exam	: 40%

Note: The students are advised to sit in the exam in the prescribed dates. No alternative times or extra test will be arranged for the students who will fail to sit for their test on prescribed dates

At the end of the course a letter grade will be awarded to students based upon their performance in all tests conducted over the length of the semester. The breakup of the final grade will be calculated with the following schedule

85% and above	A	60% to less than 65% :	C+
80% to less than 85%:	A-	55% to less than 60%:	C
75% to less than 80%:	B+	50% to less than 55%:	C-
70% to less than 75%	B	40% to less than 50%:	D

65% to less than 70%:	B-	Below 40%:	F
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Tentative Dates of the Exams

(These dates may be changed with prior notification, if unavoidable circumstances arise)

Midterm Exam – I : 10th February 2016, Wednesday [Syllabus : Ch.1 of the course outline]

Midterm Exam – II : 07th March 2016, Monday [Syllabus : Ch.2 of the course outline]

Final Exam : According to the green book [Syllabus : Ch. 3 and Ch. 4]

- [Syllabus will be declared in the class before Exam]

Recommended Text Books

1. *Introducing Pure Mathematics* : Robert Smedley, Gary Wiseman, Oxford Publishing
2. *Business Mathematics – Qazi Zameeruddin, V K Khanna, S K Bhambri, Vikas Publishing House Pvt Ltd*
3. *Mathematics – The Core Course for A-Level* : L. Bostock and S. Chandle, ELBS

Description of Course Materials

Chapter 1 : Advanced Algebra

- a) Linear Equations, Simultaneous Linear Equations and their solutions.
- b) Review of Quadratic Equation, complex roots of quadratic equations, Number Systems : Real Number System, Imaginary number, Complex numbers; algebra of complex numbers, Cube roots of unity.
- c) Further Simultaneous Equations : Linear and Quadratic
- d) Polynomials, Sequences and Series : Different types of Sequences, the Sigma Notation, Arithmetic Progression, Geometric Progression.

Chapter 2 : Advanced Coordinate Geometry

- (a) Circle : Equation of circle, centre and radius of circle
- (b) Tangent to a circle
- (c) Intersections of two circles
- (d) Equation of Parabola an locus

Chapter 3 : Functions

- a) Function : Domain and Range of a function, Limit of a function.
- b) Linear and Quadratic Function and their graphs
- c) Power, Exponential, Trigonometric and Function and their graphs.
- d) Introduction to differentiation : Power rule

Chapter 4 : Matrix and Determinants

- a) Review of definition and classification of Matrix, Algebra of Matrix
- b) Matrix Determinant of order Two and order Three, Properties of Determinant
- c) Matrix and Linear Equations : Cramer's Rule
- d) Elementary Row Operation and Linear Equations : Gauss-Jordan Method
- e) Application of Matrices