



#### COURSE OUTLINE SEM 1, 2011

**COURSE NAME:** INTRODUCTION TO MATHEMATICS – BUSINESS & MANAGEMENT

**COURSE CODE:** ITM111S: NQF level 5; 10 credits

**COURSE COORDINATOR :** Mrs. SK Heelu, Tel. 061-207 2351, Office no. 405 Blue Floor, Lecture Building

#### **SHORT COURSE DESCRIPTION:**

This course is designed to uplift the level of mathematical skills of Business and Management students. The course is structured in such a way that in the end, confidence in handling simple mathematical calculations is enhanced. The course also forms a good foundation for those students who might wish to further their studies in areas that require higher mathematical techniques.

#### **COURSE LEARNING OUTCOMES:**

By the end of the course, students should be able to

- Demonstrate revitalized and strengthened mathematical knowledge to a standard needed for further studies in the program.
- Explain Basic mathematical concepts and carry out simple calculations
- Demonstrate basic competencies in the use of basic mathematical skills
- Apply mathematical concepts to real business and management situations

#### **ASSESSMENT STRATEGIES:**

The assessment will be based on continuous evaluation and end of semester examination. The continuous evaluation is made up of class tests and/or assignments. These will contribute 40% to the final assessment. The end of semester is one three-hour paper. This will contribute 60% to the final assessment.

#### **SPECIAL RULES APPLICABLE TO THIS COURSE:**

1. Two class tests/assignments will be written during the course of the semester. **A candidate scores a Zero in a test or assignment not done on schedule.** (See point 2 below)
2. A supplementary test may be arranged for candidates who, for whatever reason, missed a class test. No candidate will be allowed more than **one** supplementary test.
3. To gain entry to the semester examination, a candidate must have obtained a continuous assessment average of NOT less than 50%.
4. The semester examination will consist of one three-hour written paper.
5. The pass mark for the course is 50% with a sub-minimum of 40% in the semester examination.
6. Class tests will be written on the exact dates as will be announced at least one week in advance by the Lecturer(s) concerned.

#### **SYLLABUS CONTENT:**

1. **REVISION: Arithmetic Operations (Week 1)**
  - 1.1 Fundamental operations on whole numbers
  - 1.2 Natural Numbers – Primes and Composites
  - 1.3 Common Divisors and Multiples (HCD and LCM)
  - 1.4 Vulgar Fractions – Concepts and Operations
  - 1.5 Decimal Fractions – Aliquot Part and Repetends. Rational Numbers
  - 1.6 Number Line. Absolute Numbers

**2. Indices, Surds and Logarithms (Weeks 2-3 )**

- 2.1 Real-Number Exponents and Roots
- 2.2 Indices, Basic rules of Indices
- 2.3 Surds, Basic rules of surds
- 2.4 Logarithms, Basic rules of logarithms, Change of base

**3. Basic Algebraic Expressions and operations (week 4)**

- 3.1 Addition, Subtraction, Multiplication and Division
- 3.2 Symbols of grouping
- 3.3 Numeric and Algebraic Expressions
- 3.4 Monomials and Polynomials
- 3.5 Factoring of a Quadratic Trinomial
- 3.6 Algebraic Fraction. Irrational Expressions

**4. Linear and Quadratic Equations (Weeks 5 & 6)**

- 4.1 Linear Equations in One Unknown (including fractional coefficients)
- 4.2 Fractional Equations in One Unknown
- 4.3 Applications of Linear Equations in One Unknown
- 4.4 Basic indicial and logarithmic equations
- 4.5 Simultaneous Linear Equations
- 4.6 Applications of Simultaneous Linear Equations
- 4.7 Quadratic Equations
- 4.8 Applications of Quadratic Equations

**TEST 1: 19 March 2011, TIME: 16:00-18:00, VENUE: Engineering Basement, Sections A, B, C.**

**5. Elementary Set Theory (week 7&8)**

- 5.1 Elements of a set
- 5.2 Methods of describing a Set
- 5.3 Set Operations
- 5.4 Venn Diagrams and Applications

**6. Matrix Algebra (not exceeding 2 x 2) (Weeks 9 & 10)**

- 6.1 Row and Column Vectors
- 6.2 Addition, Subtraction and Multiplication of Vectors
- 6.3 Addition, Subtraction and Multiplication of Matrices
- 6.4 Determinant of a matrix
- 6.5 Inverse of a 2 x 2 Matrix
- 6.6 Cramer's Rule

**7. Inequalities and The Number Line (Weeks 11&12)**

- 7.1 Properties of Inequalities
- 7.2 Solving Inequalities in One Unknown
- 7.3 Intervals on the Real Line
- 7.4 Representation of Solutions on the Real Line

**TEST 2: 16 April 2011, TIME: 17:00-19:00 VENUE: Engineering Basement, Sections ABC.**

**8. Arithmetic and Geometric Progressions (Weeks 13 & 14)**

- 8.1 Arithmetic Progression
- 8.2 Sum of Series in Arithmetic Progressions
- 8.3 Geometric Progression
- 8.4 Sum of Series in Geometric Progressions

- 8.5 The  $\Sigma$  Notation  
8.6 Sums of Natural Numbers

- 9. Basic Financial Mathematics (Weeks 15, 16 & 17)**  
9.1 Ratio, Proportions and Percentage  
9.2 Simple Interest and Simple Discount  
9.3 Basic Concepts of Compound Interest

**TEST 3: 7 May 2011, TIME: 13:00-15:00 VENUE: Engineering Basement, Sections ABC.**

**READING LIST:**

- **Prescribed Textbook:**  
Extended Mathematics for IGCSE  
David Rayner  
Oxford University Press  
ISBN 0199147868

**Recommended Textbook**  
Foundation Mathematics  
John Wiley & Sons Ltd. Chichester, 1998  
L.R Mustoe & M.D.J Barry  
ISBN 0-471-970421