

**Enclosure - II**

**DSE Allied courses in Mathematics offered to B.Voc. APPLIED  
COMPUTER TECHNOLOGY by Mathematics Department  
(2017 – 2018 & onwards)**

<b>Semester – II</b>			
<b>17VACGC06</b>	<b>DSE Allied 1 : Mathematics &amp; Statistics</b>	<b>3hrs/week</b>	<b>3 Credits</b>

**Objectives:-**

After learning this course, the students should be able to:

1. Interpolate mathematical and statistical skills and knowledge which will be beneficial to develop proficiency in analytical reasoning.
2. Demonstrate skills of solving real world problems.
3. Associate basic methods of mathematics and statistics in computing to design and analyze algorithms, computability theory and graphics.
4. Identify a problem and examine different methods to its solutions and evaluate merits and demerits of each.
5. Distinguish a logical argument from a fallacious one in mathematical reasoning as well as in everyday life.

**Unit:1 : Set Theory**

**[8 hours]**

- Introduction
- Methods of Representation of a Set
- Different Types of Sets
- Operations on sets & its properties (Union of sets, Intersection of sets, Complement of a set, Difference of sets) (without proof)
- Cartesian Product.

**Unit:2 : Matrix**

**[8 hours]**

- Introduction
- Different Types of Matrices
- Trace of Matrix
- Transpose of Matrix
- Addition & Subtraction of Matrices
- Multiplication of Matrices
- Adjoint of Matrix.

**Unit:3 : Co-ordinate Geometry**

**[8 hours]**

- Introduction
- Distance between two Points in  $R_2$  (without proof)

- Different Types of Equations of Lines(without proof)
- Parallel Lines
- Perpendicular Lines.

#### **Unit:4 : Number System**

**[8 hours]**

Types of Number System[Binary / Octal / Decimal / Hexadecimal ]

- Conversions
  - Decimal to Binary / Octal / Hexadecimal
  - Binary to Decimal / Octal / Hexadecimal
  - Octal to Binary / Decimal / Hexadecimal
  - Hexadecimal to Binary / Octal / Decimal
- Complement
  - 1's Complement
  - 2's Complement

#### **Unit:5 : Measure of Central Tendency**

**[8 hours]**

- Introduction
- Mean
- Median
- Mode.

#### **Text Books**

1. Mathematical Statistics by S. C. Gupta and V. K. Kapoor
2. Discrete Mathematical Structures with Applications to Computer Science by J. P. Tremblay and R. Manohar

#### **Reference Books**

1. Numerical Methods by V. N. Vedmurthy
2. Operations Research by V. K. Kapoor
3. Discrete Mathematics by Olympia Nicodemi