

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
SYLLABUS FOR B. Sc. (MATHEMATICS)
SEMESTER -III
Elective Generic
EG-3001
(Mathematical Methods)*
Effective from June 2021
Marks:70 (20 internal + 50 external)
(2 Hours / Week - Credits: 2)

Unit I:

Notations of finite difference calculus, Operators E , Δ , ∇ , δ , Relations between different operators and their properties, Relation between difference and differential operators, Method of constructing difference tables, Finding the missing terms.

Unit II:

Factorial notation, Expression of polynomials in factorial notation by using finite differences, Method of unknown coefficients.

Unit III:

Difference equations: Order and degree of a difference equation, Solution of difference equations, Homogeneous difference equations with constant coefficients.

The course is covered by the following reference books :

1. S.S. Sastry : Introductory methods of Numerical Analysis, Prentice-Hall of India Pvt. Ltd.; 4th Edition.
2. M. K. Jain, Iyenger, Jain: Numerical Methods for Scientific and Engineering Computations, New Age International Ltd.
3. Goel, Mittal : Numerical Analysis, Pragati Prakashan, Meerut.
4. Kaiser A. Kunz : Numerical Analysis, McGraw Hill Book Co., London.
5. James I. Buchanan, Peter R. Turner : Numerical Methods & Analysis, McGraw Hill Book Co., London.

* Use of Scientific non – programmable calculator is allowed.



VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
SYLLABUS FOR B. Sc. (MATHEMATICS)

SEMESTER – III

Elective Generic

EG-3002

(Group of Symmetries-I)

Effective from June 2021

Marks:70 (20 internal + 50 external)

(2 Hours / Week - Credits: 2)

Unit I:

Definition of a group and its elementary properties, Order of a group, Order of an element of a group, Group multiplication tables, Examples of groups including finite groups and infinite groups, Abelian groups, Cyclic groups.

Unit II:

Subgroup, Condition that a subset is a subgroup, Examples of subgroups, Basic concept of symmetry, Symmetry elements and symmetry operations in a space, Identity symmetry operation.

Unit III:

Symmetry planes and reflection symmetry, Inversion centre and inversion symmetry, Rotation axes and rotation symmetry, Improper axes and improper rotation symmetry, Product of symmetry operations.

The course is covered by the following reference books:

1. F. A. Cotton: Chemical application of group theory, Wiley Inter Science, Wiley Eastern Ltd., New Delhi.
2. G. Davidson: Intro. Group Theory for Chemists, Applied Science Publisher.
3. I. N. Herstein: Topics in Algebra, Wiley Eastern Ltd., New Delhi.

