VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS FOR B.Sc. (MATHEMATICS)

SEMESTER –II

MTH-201

MATHEMATICS-III

Effective from June-2020

Marks :70 (20 Internal +50 External)

(3 Hours /Week-Credit :3)

Unit-I

Different types of matrices, Operations on matrices, Properties of operations of matrices, Elementary row operations,

Unit-II

Row-reduced echelon forms, Inverse of matrix by Row –Reduced Echelon form. Row rank of a matrix, Quadratic forms.

Unit-III

Trace of matrix and its properties, Solution of homogeneous system of linear equations using row – reduced echelon forms.

Unit-IV

Characteristic equation of a matrix, Method to find Characteriastic equation using determinant and minors of a matrix, Eigen values and Eigen vectors of a matrix, Cayley-Hamilton theorem and its application to find an inverse of a matrix, Method of diagonalization.

The course is covered by the following reference books:

1. Krishnamurthy, Mainra and Arora: An Introduction to linear Algebra, Affiliated West Press Pvt. Ltd., New Delhi.

2. Erwin Kreyszig: Advanced Engineering Mathematics, Wiley India (P) Ltd., 2009.

3. B.S.Vasta and Suchi Vasta: Theory of Matrices; 4rd Edition -2014, New Age International (P) Ltd. Publishers, New Delhi.

4. Shantinarayan: Text book of Matrices, S. Chand and Co., New Delhi.

5. H. K. Dass, H. C. Saxena, M. D. Raisinghania: Simplified course in Matrices, S. Chand and Co., NewDelhi.

6. N.P.Bhamore and et al: College Aadhunik Ganit shastra, Popular Prakashan, Surat.

VEER NARMAD SOUTH GUJARAT UNIVERSITY,SURAT

SYLLABUS FOR B.Sc.(MATHEMATICS)

SEMESTER –II

MTH-202

MATHEMATICS-IV

Effective from June-2020

Marks :70 (20 Internal +50 External)

(3 Hours /Week-Credit :3)

Unit-I

Curve Tracing : Equation of the form $= f(x)$,Equation of the form $^2 = f(x)$,Parametric equations,

Unit-II

Application of Integral calculus: Length of a curve, Intrinsic equation (except polar coordinates).

Unit:III

Bernoulli's equation, Exact differential equation, Differential equations of first order and higher degree : Solvable for , $,p$ and Lagrange's equation, Clairaut's equation.

Unit-IV

Linear Differential Equations with constant coefficients: Complimentary functions, Particular Integral, General Solution, Method for finding Particular Integral specially for $e^{ax}, sinax, cosax,$ polynomial in terms of , $e^{ax}V$ and xV, where V is a function of .

The course is covered by the following reference books:

1.Shantinarayan : Differential calculus ,4th edition -2001,Shyamlal Charitable Trust,Ram nagar New Delhi, S. Chand and Company LTD.

2. Shantinarayan: Integral Calculus, Revised Edition-2009, S.Chand and Co., New Delhi.

3. Gorakhprasad: Integral Calculus, Pothishala Pvt.Ltd., Allahabad.

4. D.A.Murray: Differential Equations, Tata Mc Graw Hills.

5. Frank Ayres: Theory and problems on Differential Equations, Mc Graw Hill Book Co., New York.

6. N.P.Bhamore and et al: College Aadhunik Ganit shastra, Popular Prakashan, Surat.