

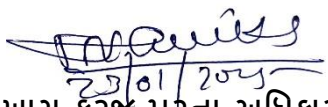


પરિપત્ર:

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટીની સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજોનાં આચાર્યશ્રીઓને સવિનય જણાવવાનું કે સાયન્સ વિદ્યાશાખા હેઠળનો NEP-૨૦૨૦ અંતર્ગતનો ગણીત વિષયનો (બી.એસસી. મેથેમેટીક્સ વિથ ઓનર્સ) સેમેસ્ટર-૪ નો અભ્યાસક્રમ આ સાથે સામેલ છે.

માનનીય કુલપતિશ્રીની મંજૂરી અનુસાર સદર અભ્યાસક્રમ શૈક્ષણિક વર્ષ જુન, ૨૦૨૪-૨૫ થી અમલવારી કરવાની રહે છે. સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજો ધ્વારા તેની અમલવારી કરવા જણાવવામાં આવે છે.




ખાસ ફરજ પરના અધિકારી
(એકેડેમિક)

ક્રમાંક/બીકેએનએમયુ/ એકેડેમિક/૩૧૩/૨૦૨૫

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી,

સરકારી પોલીટેકનિક કેમ્પસ,

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ,

ખડીયા, જૂનાગઢ-૩૬૨૨૬૩

તા.૨૩/૦૧/૨૦૨૫

પ્રતિ,

- ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમો ચલાવતી તમામ કોલેજોના આચાર્યશ્રીઓ તરફ....

નકલ સાદર રવાના:-

- માન.કુલપતિશ્રી/કુલસચિવશ્રીનાં અંગત સચિવશ્રી.
- પરીક્ષા નિયામકશ્રી, ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જુનાગઢ

નકલ રવાના જાણ તથા યોગ્ય કાર્યવાહી અર્થે:

- સીસ્ટમ મેનેજરશ્રી, આઈ.ટી.સેલ વિભાગ (વેબસાઇટ ઉપર પ્રસિદ્ધ થવા અર્થે.)



**BHAKTA KAVI NARSINH MEHTA UNIVERSITY
JUNAGADH**



**BOARD OF MATHEMATICS STUDIES
FACULTY OF SCIENCE
SYLLABUS FOR
B.Sc. (MATHEMATICS) (HONOURS) PROGRAMME
(SEMESTER- IV)
EFFECTIVE FROM JUNE, 2024-25**

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Faculty of SCIENCE
Effective from June 2024-25
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SUMMARY OF THE SYLLABUS

Sem No.	Sr. No.	Category of Course	Course Title	Course Level	Credit	Teaching Hrs.	SEE Marks	CCE Marks	Total Marks	SEE Exam Duration
Sem-4	1	Major-8	Linear Algebra-2	5.0	4	4	50	50	100	2 HOURS
	2	Major-9	Advanced Calculus-2	5.0	4	4	50	50	100	2 HOURS
	3	Major-10	Computational Mathematics-2 (Practical Based Course)	5.0	4	8/ Batch/ Week	50	50	100	3 Hours
	4	Minor-3	Numerical Computational Techniques (Practical Based Course)	5.0	4	8/ Batch/ Week	50	50	100	3 Hours
				Total	16					

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Course Level	5.0		Internal Marks	50
Programme	B.Sc. (Mathematics)		External Marks	50
Semester	IV		Practical Internal	---
Category of Course	Major-8		Practical External	---
Course Credit	4		Prac. External Exam Duration	---
Teaching Hours	4 Lectures/Week		Total	100
Course Code			Exam Duration	2 Hours
Course Title	LINEAR ALGEBRA-2			

Course Objectives:

- Introduce foundational concepts of linear algebra.
- Develop a strong understanding of vector spaces, linear transformations, and their properties.
- Explore eigenvalues, eigenvectors, and their applications in diagonalization.
- Examine bilinear forms and their relationship to quadratic forms.
- Investigate the theory and applications of linear groups.
- Cultivate problem-solving and critical thinking skills related to linear algebra.
- Enhance mathematical reasoning and abstract thinking abilities.
- Prepare students for further studies in mathematics, physics, engineering, and other related fields.
- Provide a solid foundation for understanding advanced mathematical concepts.
- Foster an appreciation for the elegance and power of linear algebra.

Course Learning Outcomes: After successfully completing the course, students will be able to..

- Define key terms and concepts in linear algebra, such as vector spaces, subspaces, linear transformations, eigenvalues, eigenvectors, and bilinear forms.
- Perform basic operations on vectors and matrices, including addition, scalar multiplication, matrix multiplication, and finding inverses.
- Determine eigen values and eigen vectors of matrices and understand their significance.
- Diagonalize diagonalizable matrices and apply diagonalization techniques to solve problems.
- Analyze bilinear forms, classify them as symmetric or skew-symmetric, and find their matrix representations.
- Recognize different types of linear groups and understand their properties.
- Solve problems involving systems of linear equations, linear transformations, and matrix operations.

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- Apply linear algebra concepts to solve problems in other areas of mathematics, science, and engineering.
- Communicate mathematical ideas clearly and effectively, both orally and in writing.
- Demonstrate a deep understanding of the fundamental concepts of linear algebra and their interconnections.

Sem	Unit No.	Syllabus	Teaching Hours
4	1	Concept of different Linear Transformations Direct Sum of Subspaces, Complementary Subspaces, Orthogonal Complementary Subspace, Orthogonal Projections of a vector, Symmetric Linear Transformation, Eigen Value of a Symmetric Linear Transformation, Spectra of Linear Transformation, Characteristic Subspace, Orthogonal Linear Transformation, Orthogonal Complementary Subspace, Spectral Theorem, Second Form of Spectral Theorem, Third Form of Spectral Theorem, Diagonalization of a Symmetric matrix, Equivalent matrices.	18
	2	Bilinear Forms Bilinear Form, Examples of Bilinear Forms. Properties of Bilinear Forms, Symmetric and Skew-Symmetric Bilinear Forms, Matrix Representation of a Bilinear Form.	12
	3	Quadratic Forms Quadratic Form, Examples of Quadratic Forms, Properties of Quadratic Forms, Congruent Quadratic Forms, Rank and Signature of a Quadratic Form, Reduction of a Quadratic Form, Canonical Form of a Quadratic Form.	12
	4	Full Linear Group and Affine Group Full Linear Group, Examples of Full Linear Groups, Orthogonal Matrix, Unitary Matrix, Orthogonal Linear Transformation, Orthogonal Group of a Full Linear Group, Shift Function, Affine Transformation, Affine Groups, Shift function, Affine Linear Transformation.	18

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Suggested References:

1. Linear Algebra and Its Applications by David C. Lay, Steven R. Lay, Judi J. McDonald
2. ISBN: 978-0-32-198238-4
3. Linear Algebra Done Right by Sheldon Axler
4. ISBN-13: 978-3-319-11079-0
5. Linear Algebra by Hoffman and Kunze
6. ISBN-13: 978-0-13-536797-1
7. Introduction to Linear Algebra by Gilbert Strang
8. ISBN-13: 978-0-9802327-1-9
9. A Textbook of Linear Algebra by K. Hoffman and R. Kunze
10. ISBN-13: 978-0-13-150885-7
11. A Course in Linear Algebra by David C. Lay
12. ISBN-13: 978-0-321-28713-7

Suggested e-learning Resource: <https://nptel.ac.in/courses>

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Course Level	5.0		Internal Marks	50
Programme	B.Sc. (Mathematics)		External Marks	50
Semester	IV		Practical Internal	---
Category of Course	Major-9		Practical External	---
Course Credit	4		Prac. External Exam Duration	---
Teaching Hours	4 Lectures/Week		Total	100
Course Code			Exam Duration	2 Hours
Course Title	ADVANCED CALCULUS-2			

Course Objectives:

- Understand the fundamental concepts of partial differentiation.
- Formulate PDEs from given physical or mathematical models.
- Classify different types of PDEs (e.g., hyperbolic, parabolic, elliptic).
- Develop proficiency in solving first-order PDEs using various methods.
- Solve second-order and higher-order PDEs, including those with constant coefficients.
- Understand and apply techniques for reducing PDEs to simpler forms.
- Define and understand the Laplace Transform and its properties.
- Determine Laplace Transforms of various functions.
- Apply shifting theorems, change of scale property, and the convolution theorem.
- Find inverse Laplace Transforms of given functions.
- Solve ordinary and partial differential equations using Laplace Transform techniques.
- Develop problem-solving and analytical skills in applying mathematical concepts to real-world problems.

Course Learning Outcomes: After completion of the course, a student will be able to do the followings:

- Demonstrate a solid understanding of partial derivatives and their applications.
- Formulate PDEs that accurately model given physical or mathematical situations.
- Classify PDEs correctly based on their characteristics.
- Solve first-order PDEs using methods such as Lagrange's method and Charpit's method.
- Solve second-order and higher-order PDEs, including those with constant coefficients, using appropriate techniques.
- Apply techniques such as transformations to simplify complex PDEs.
- Define and explain the Laplace Transform and its key properties.

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- Calculate Laplace Transforms of various functions, including those involving derivatives and integrals.
- Apply shifting theorems, change of scale property, and the convolution theorem effectively.
- Find inverse Laplace Transforms using appropriate methods.
- Solve ODEs and PDEs using Laplace Transform techniques, interpreting the results.
- Apply mathematical knowledge and problem-solving skills to analyze and solve real-world problems involving PDEs and Laplace Transforms.

Course Contents:

Sem	Unit No.	Syllabus	Teaching Hours
4	1	Formation of Partial differential equations by the elimination of Arbitrary constants and arbitrary functions. Partial Differential Equations of the first order, the complete and particular integrals, Lagrange's solution of the linear equation. Some special types of equations which can be solved easily by the methods other than the general method, Charpit's method.	18
	2	Partial differential equations of second and higher orders. Classification of linear partial differential equations of second order. Homogenous and non-homogenous equations with constant coefficients. Partial differential equations reducible to equations with constant coefficients. Monge's methods.	18
	3	Laplace Transformation, Linearity of Laplace transform, Laplace transforms of standard functions, Shifting Theorems, change of scale property, Laplace transform of derivatives and integrals.	12
	4	Inverse Laplace transforms, Multiplication by t^n and division by t , Convolution Theorem. Applications to differential equations.	12

Suggested References:

1. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi. ISBN: 81-89050-71-0
2. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons Inc., New York, 1999 ISBN: 0-471-50729-2
3. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967
4. I.N. Sneddon, Elements of Partial differential Equations, McGraw- Hill Book Company 1988 ISBN: 0-07-058562-2
5. K. R. Kachot, Higher Engineering Mathematics Vol-II, Mahajan Publishing House, Ahmedabad.

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Course Level	5.0		Internal Marks	--
Programme	B.Sc. (Mathematics)		External Marks	--
Semester	IV		Practical Internal	50
Category of Course	Major-10		Practical External	50
Course Credit	4		Prac. External Exam Duration	3 Hours
Teaching Hours	8 Hours/ Batch/ Week		Total (SEE+CCE)	100
Course Code			Exam Duration	3 Hours
Course Title	Computational Mathematics-2 (Practical Based Course)			

Course objectives:

- Introduce finite differences for equi-spaced data points and their applications.
- Understand relationships among various difference operators ($\Delta, \nabla, E, \delta, \mu, D$) and their applications.
- Implement forward and backward interpolation techniques using Gregory Newton's formulas.
- Apply Newton's divided difference interpolation formula for unequally spaced data.
- Implement Lagrange's interpolation and inverse interpolation formulas.
- Apply Gauss forward and backward interpolation techniques.
- Utilize central difference interpolation techniques, including Sterling, Bessel, and Laplace Everette formulas.
- Perform numerical differentiation using various interpolation methods.
- Apply numerical integration techniques, including Trapezoidal rule, Simpson's rules, Weddle's rule and Gauss quadrature formula.
- Conduct curve fitting and regression analysis for linear, hyperbolic, exponential, geometric, and quadratic models.
- Solve initial value problems using Euler's methods, Taylor's series method, Picard's method, and Runge-Kutta methods.
- Apply predictor-corrector methods such as Milne's and Adam Bashforth methods.

Course Learning Outcomes: After completion of the course, a student will be able to do the followings:

- Students will be able to compute finite differences and apply them to find missing values in data tables.
- Students will understand and utilize relationships among different operators like $\Delta, \nabla, E, \delta, \mu, D$.
- Students will implement forward and backward interpolation using Gregory Newton's formulas accurately.
- Students will apply Newton's divided difference formula for interpolating unequally spaced data.

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- Students will use Lagrange's interpolation and inverse interpolation formulas effectively.
- Students will implement Gauss forward and backward interpolation techniques with precision.
- Students will apply central difference interpolation techniques including Sterling, Bessel, and Laplace Everette formulas.
- Students will perform numerical differentiation up to the second order using various interpolation methods.
- Students will carry out numerical integration using methods such as Trapezoidal rule, Simpson's rules, Weddle's rule, and Gauss quadrature formula.
- Students will conduct curve fitting and regression analysis for different types of functions and models.
- Students will solve initial value problems using Euler's methods, Taylor's series method, Picard's method, and various Runge-Kutta methods.
- Students will apply predictor-corrector methods, including Milne's and Adam Bashforth methods, for solving differential equations.

Practical No.	Title
1.	Introduction to finite differences for a set of equi-spaced collection of points: (A) Finite differences based missing values (up to three) in data table of two variables (B) Relation among various operators like Δ , ∇ , E , δ , μ , D . (C) Factorial polynomials, reciprocal factorial function and their applications
2.	Implementation of forward and backward Interpolation techniques: (A) Gregory Newton's forward interpolation formula (B) Gregory Newton's backward interpolation formula
3.	Implementation of unequally spaced interpolation technique (I): Newton's divided difference interpolation formula
4.	Implementation of unequally spaced interpolation technique (II): (A) Lagrange's interpolation formula (B) Lagrange's inverse interpolation formula <u>Note</u> : Restrict the number of points in the given data to atmost 6 points.
5.	Implementation of Gauss forward and backward interpolation techniques: (A) Gauss forward interpolation formula (B) Gauss backward interpolation formula
6.	Implementation of other central difference interpolation techniques: (A) Sterling interpolation formula (B) Bessel's interpolation formula (C) Laplace Everette's interpolation formula
7.	Numerical differentiation using Gregory Newton's forward / backward interpolation method (upto 2 nd order)

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8.	Numerical differentiation using Newton's divided difference interpolation method (upto 2 nd order)
9.	Numerical differentiation using Lagrange's interpolation method (upto 2 nd order) <u>Note:</u> Restrict the number of points in the given data to at most 6 points.
10.	Numerical differentiation using Gauss forward / backward difference interpolation methods. (upto 2 nd order)
11.	Numerical integration (I): (A) Obtaining integral as lower sum and upper sum (B) Obtaining integral by using Trapezoidal rule
12.	Numerical integration (II): (A) Simpson's 1/3 rd rule (B) Simpson's 3/8 th rule (C) Weddle's rule
13.	Numerical integration (III): Gauss quadrature formula with 2 evaluation points and 3 evaluation points only.
14.	Curve fitting or Regression analysis (I): (A) Linear regression of type $y = ax + b$ (B) Hyperbolic regression of type $y = \frac{1}{ax+b}$
15.	Curve fitting or Regression analysis (II): (A) Exponential regression of type $y = a e^{bx}$ (B) Geometric regression of type $y = a x^b$
16.	Curve fitting (III): Quadratic curve fitting of type $y = ax^2 + bx + c$
17.	Numerical solution of initial value problem (I): (A) Euler's method (B) Modified Euler's method (C) Improved Euler's method
18.	Numerical solution of initial value problem (II): (A) Taylor's series method (B) Picard's method
19.	Numerical solution of initial value problem (III): (A) 2 nd order Runge Kutta's method (B) 3 rd order Runge Kutta's method (C) 4 th order Runge Kutta's method
20.	Numerical solution of initial value problem (IV): (A) Milne's predictor corrector methods (B) Adam Bashforth predictor corrector methods

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Note:

1. Theoretical and geometry explanation, as and when needed, must be provided before beginning any practical from the list above.
2. For practical number 1, at least 4 examples in each subpractical (i.e. A, B and C) must be written in Journal.
3. For the practicals numbered 3, 8, 9, 13, 16, 20 at least 2 examples must be written in Journal.
4. For remaining practicals, at least 4 examples must be written in Journal.

Suggested Reference:

1) Numerical Methods

- **Authors:** V.N. Vedamurthy and N. Ch. S. N. Iyengar
- **Publisher:** Vikas Publishing House Pvt. Ltd.
- **Edition:** 1st Edition
- **Publication Year:** 2002
- **ISBN:** 978-8125906308

2) Numerical Methods for Scientists and Engineers

- **Authors:** M.K. Jain and Rajendra K. Jain
- **Publisher:** New age international publishers
- **Edition:** 8th Edition
- **ISBN:** 978-9393159151

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Programme	B.Sc. (Mathematics)		External Marks	--
Semester	IV		Practical Internal	50
Category of Course	Minor-3		Practical External	50
Course Credit	4		Prac. External Exam Duration	3 Hours
Teaching Hours	8 Hours/ Batch/ Week		Total (SEE+CCE)	100
Course Code			Exam Duration	3 Hours
Course Title	Numerical Computational Techniques (Practical Based Course)			

Course objectives:

- Understand and apply various methods (graphical, bisection, false position, secant, fixed point iteration, and Newton-Raphson) to find roots of transcendental equations.
- Explore practical applications of the Newton-Raphson method.
- Calculate derivatives of polynomials using synthetic division.
- Use Horner's method to find roots of algebraic equations.
- Predict positive or negative roots using Descartes' rule of signs.
- Understand the relationship between coefficients and roots.
- Solve equations with roots diminished or increased by a constant 'k'.
- Find equations with roots as multiples of 'm'.
- Find equations with reciprocal roots.
- Solve equations with roots in arithmetic, geometric, and harmonic progressions.
- Obtain all roots (including radical roots) of cubic equations using Cardano's method.
- Find all roots (including radical roots) of biquadratic equations using Ferrari's method.
- Solve systems of simultaneous linear equations using Cramer's method (up to four variables).
- Understand LU decomposition and solve systems involving three variables.
- Solve systems using Crout's method (three variables).
- Apply Gauss-Jacobi iterative method to solve systems (up to four variables).
- Use Gauss-Seidel iterative method to solve systems (up to four variables).

Course Learning Outcomes: After completion of the course, a student will be able to do the followings:

- After completing the course, a student will be able to...
- Understand how to find roots of transcendental equations using graphical methods.
- Apply the bisection method to obtain roots of transcendental equations.
- Utilize the false position method to find roots of transcendental equations.

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- Solve transcendental equations using the secant method.
- Apply fixed point iteration to find roots of transcendental equations.
- Master the Newton-Raphson method for finding roots of transcendental equations.
- Explore practical applications, such as finding p^{th} roots of positive numbers.
- Calculate derivatives of polynomials using synthetic division.
- Use Horner's method to find roots of algebraic equations.
- Predict positive or negative roots using Descartes' rule of signs.
- Understand the relationship between coefficients and roots.
- Find equations with roots diminished or increased by a constant 'k'.
- Solve directly and using synthetic division.
- Find equations with roots as multiples of 'm'.
- Find equations with reciprocal roots.
- Solve directly and using synthetic division.
- Solve equations with roots in arithmetic, geometric, and harmonic progressions.
- Obtain all roots (including radical roots) of cubic equations using Cardano's method.
- Find all roots (including radical roots) of biquadratic equations using Ferrari's method.
- Solve systems of simultaneous linear equations using Cramer's method (up to four variables).
- Understand LU decomposition and solve systems involving three variables.
- Solve systems using Crout's method (three variables).
- Apply Gauss-Jacobi iterative method to solve systems (up to four variables)
- Use Gauss-Seidel iterative method to solve systems (up to four variables).

Practical No.	Title
1.	To obtain roots of transcendental equation by Graphical method.
2.	To obtain roots of transcendental equation by Bisection method.
3.	To obtain roots of transcendental equation by False position method.
4.	To obtain roots of transcendental equation by Secant method.
5.	To obtain roots of transcendental equation by Fixed point iteration method.
6.	To obtain roots of transcendental equation by <i>Newton Raphson</i> method.

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7.	Applications of NR method (To obtain p^{th} root of a positive number using NR method)
8.	To obtain derivatives of a polynomial by Synthetic division.
9.	To obtain roots of algebraic equation by <i>Horner's</i> method.
10.	(A) <i>Descarte's</i> rule of sign for predicting positive or negative roots of a polynomial equation. (B) Relation between coefficients of a polynomial equation and its roots. Problems based on this principle. (C) Removing the second term of an n^{th} degree polynomial equation by diminishing roots by $\frac{-a_1}{n a_0}$.
11.	(A) Find the equation whose roots are diminished by a constant 'k' w.r.t. the given polynomial equation. (B) Find the equation whose roots are increased by a constant 'k' w.r.t. the given polynomial equation. <u>Note:</u> Solving directly as well as with the use of synthetic division, wherever applicable.
12	(A) Find the equation whose roots are multiples of m. (B) Find the equation whose roots are reciprocal of the given polynomial equation. <u>Note:</u> Solving directly as well as with the use of synthetic division, wherever applicable.
13.	(A) To solve a polynomial equation whose roots are in <i>arithmetic</i> progression. (B) To solve a polynomial equation whose roots are in <i>geometric</i> progression. (C) To solve a polynomial equation whose roots are in <i>harmonic</i> progression.
14.	To obtain all roots (including radical roots) of a cubic equation by <i>Cardon's</i> method.
15.	To obtain all roots (including radical roots) of a biquadratic equation by <i>Ferrari's</i> method.
16.	To solve a system of simultaneous linear equations using <i>Cramer's</i> method. (System of equations involving up to four variables).
17.	To solve a system of simultaneous linear equations using <i>LU decomposition</i> method. (System of equations involving three variables only).
18.	To solve a system of simultaneous linear equations using <i>Crout's</i> method. (System of equations involving three variables only).
19.	To solve a system of simultaneous linear equations using <i>Gauss Jacobi</i> iterative method. (System of equations involving up to four variables).
20.	To solve a system of simultaneous linear equations using <i>Gauss Seidel</i> iterative method. (System of equations involving up to four variables).

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Subject: MATHEMATICS
SEMESTER-IV

Suggested References:

- 1) Numerical Methods
 - Authors: V.N. Vedomurthy and N. Ch. S. N. Iyengar
 - Publisher: Vikas Publishing House Pvt. Ltd.
 - Edition: 1st Edition
 - Publication Year: 2002
 - ISBN: 978-8125906308
- 2) Theory of Equations
 - Author: Hari Kishan
 - Publisher: Atlantic Publishers and Distributors (P) Ltd
 - Edition: 1st Edition
 - Publication Date: 13 July 2022
 - ISBN: 978-8126918263
- 3) Algebra
 - Author: Michael Artin
 - Publisher: Pearson Education
 - Edition: 2nd Edition
 - Publication Year: 2013
 - ISBN: 978-1292051741
- 4) Higher Algebra
 - Authors: Hall & Knight
 - Publisher: Arihant Publications India Limited
 - Edition: 7th Edition
 -
 - Publication Date: 27 April 2023
 - ISBN: 978-9388127318
- 5) Elementary Theory of Equations
 - Author: Leonard Eugene Dickson
 - Publisher: John Wiley & Sons
 - Edition: 1st Edition
 - Publication Year: 1914
 - ISBN: 978-1292051741
- 6) @ Suggested e-learning resource: <https://nptel.ac.in/courses>

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam (Mandatory)	25
2	Class Test	05
3	Open book exam/test	05
4	Open note exam/test	05
5	Self-test/ Online test	05
6	Essay/Article writing	05
7	Quizzes/Objective test	05
8	Class assignment	05
9	Home assignment	05
10	Reports Writing	05
11	Research/Dissertation	05
12	Case Studies	05
13	Viva/Oral exam	05
14	Group Discussion	05
15	Role Play	05
16	Paper presentation/Seminar	05
17	Language Lab work	05
18	Interview	05
19	Craft work	05
20	Co-curricular work	05
21	Field Assignment	05
22	Poster Presentation	05
23	Attendance	05
24	Project Work	05
	Total	50

Note: Sr.No.1 is mandatory. Select any five from Sr.No.2 to 24.

Each Contains five marks.

Student should secure 18 Marks out of 50 Marks (for 4 Credit course).

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Paper Style for SEE of Major Courses-8 & 9:

Que. No.	Particulars	From which Unit	Marks
1	Answer any TWO out of THREE	1	10
2	Answer any TWO out of THREE	2	10
3	Answer any TWO out of THREE	3	10
4	Answer any TWO out of THREE	4	10
5	Answer any TWO out of THREE	From All four Units	10
Total Marks			50

**Paper Style for SEE of Major Course-10 and Minor-3:
(PRACTICAL BASED COURSES OF 4 CREDITS)**

Que. No.	Particulars	Marks
1	Answer any FOUR out of SIX (each of 9 Marks)	36
2	Viva	08
3	Journal	06
Total Marks		50