

Vivekanand College, Kolhapur (Autonomous)

Department of mathematics

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Prof. S.P. Thorat

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Basic Algebra and Complex Numbers

Month: August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Theory of Equations	1 Elementary theorems on the roots of an equations 2. The remainder and factor theorems, Synthetic division 3. Factored form of a polynomial.
04	04	08		
Month: September			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Theory of Equations	4. The Fundamental theorem of algebra. 5. Relations between the roots and the coefficients of polynomial equations 6. Integral and rational roots.
05	04	09		
Month : October			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Complex Numbers:	1.Polar representation of complex numbers 2. De Moivre's theorem (integer and rational indices) 3. Roots of a complex number, expansion of $\cos n\theta$ , $\sin n\theta$
04	04	08		
Month : November			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Complex Numbers:	4. Euler's exponential form of a complex number 5. circular function and its periodicity 6. Hyperbolic function
05	04	09		

*S.P. Thorat*

Name and Signature of Teacher

(Thorat S.P.)



*S.P. Thorat*

(Prof. S.P. Thorat)

**HEAD**

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**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Prof. S.P. Thorat

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Logical Reasoning

Month: August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Number System	1. Number system 2. Fractions 3. Surds and Indices
04	04	08		
Month: September			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Number System	4. Squares and Square Roots 5. Cubes and Cube Roots 6. HCF and LCM 7. Logarithm
04	04	08		
Month : October			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Coding /Decoding	1. Alphabet 2. Series 3. Analogy
04	04	08		
Month : November			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Coding /Decoding	4. Coding/ Decoding 5. Blood Relationship
04	04	08		

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Department of Mathematics  
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**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Prof. S.P. Thorat

Programme - B.Sc. II

Semester - III

Subject: Mathematics

Course Title: Integral Calculus

Month : August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1.Beta and Gamma functions	1. Definition of Beta function 2. Basic Properties of Beta function and Examples on Beta functions 3. Definition of Gamma function
08		08		
Month : September			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1.Beta and Gamma functions	1. Basic Properties of Gamma function and Examples on Gamma functions 2. Relation between Beta and Gamma function
08		08		
Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3.Multiple integrals	1. Integration Method of Evaluation 2. Related Double examples Cartesian and Polar Form
08		08		
Month : November			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3.Multiple integrals	1. .Change of order of integration 2. Change of Variable, Examples on Triple Integral.
08		08		

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Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Prof. S.P. Thorat

Programme - B. Sc. III

Semester - V

Subject: Mathematics

Course Title: Numerical Methods

Month : August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Numerical Interpolation (for unequal interval)	1. Introduction, Lagrangian interpolating polynomial (formula only), examples 2. Divided difference interpolation; Newton's divided differences, divided difference table, examples finding divided (differences of given data) 3. Newton's divided difference form of interpolating polynomial, examples
12		12		
Month: September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Numerical Interpolation (for equal interval)	1. Forward interpolation: Newton's forward differences, forward difference table. Newton's forward form of interpolating polynomial (formula only) examples 2. Backward interpolation: Newton's backward differences, backward difference table, Newton's backward form of interpolating polynomial (formula only).
12		12		
Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Numerical Differentiation and Integration	1. Numerical differentiation based on interpolation polynomial. 2. Numerical integration: Newton-Cotes formula (statement only) 3. composite Trapezoidal rule 4. composite Simpson's 1/3rd rule, examples 5. composite Simpson's 3/8th rule, examples.
12		12		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Solution of first order Ordinary Differential Equations	1. Euler's Method, Examples, 2. Second order Runge-Kutta method (formula only). Examples 3. Fourth order Runge-Kutta method (formula only), examples
12		12		

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Department of Mathematics  
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**Vivekanand College, Kolhapur (Autonomous)**  
**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Prof. S. P. Thorat

Program: B.Sc. III

Semester: V

Subject: Mathematics

Coarse Title: Core Course Practical In Mathematics (CCPM-V)

Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Numerical Interpolation(for equal interval)	1) Newton's forward interpolation
00	09	09		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Numerical Interpolation(for equal interval)	2) Newton's Backward interpolation
00	07	07		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	Numerical Interpolation(for unequal interval)	1) Lagrange's interpolation
00	08	08		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Numerical Interpolation(for unequal interval)	2) Newton's Divided difference interpolation
00	05	05		

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Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Mr. G. B. Kolhe

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Quantitative Aptitude

Month: August			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3. Geometry	1. Triangles 2. Quadrilaterals
04	04	08		
Month: September			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3. Geometry	3. Circles 4. Cylinders
04	04	08		
Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3. Geometry	5. Cones 6. Spheres
04	04	08		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. Permutation and Combination	1. Permutation 2. Combination
04	04	08		

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**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: G. B. Kolhe

Program: B.Sc. II

Semester: III

Subject: Mathematics

Course Title: Number Theory

Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Divisibility theory in the integers	1) Mathematical induction 2) Division Algorithm 3) Euclidean Algorithm 4) Diophantine equation
12	07	19		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Prime and their distribution	1) definition of prime number 2) fundamental theorem of arithmetic 3) Euclid's theorem
11	08	19		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	Theory of congruences	1) Definition of congruence 2) Basic properties of congruence 3) Fermat's theorem and their examples 4) Examples on Wilsons theorem
12	08	20		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Number-Theoretic Function	1) The sum and Number of divisors and it's examples 2) Greatest integer function 3) Euler's Phi-function 4) Some properties of the Phi-function
11	07	18		

G. B. Kolhe

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**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Mr. G. B. Kolhe.

Program: B.Sc. III

Semester: V

Subject: Mathematics

Coarse Title: Partial Differential Equation

Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Partial Differential Equations	1) Derivation of a partial order differential equation by the elimination of constants 2) Derivation of partial differential equation by the elimination of arbitrary functions.
12	00	12		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Non-Linear Partial Differential Equations	1) The integrals of the non-linear equation 2) The complete and particular integrals 3) The integral of the linear equation, Equation equivalent to the linear equation 4) Lagrange's solution of the linear equation, Verification of Lagrange's solution.
12	00	12		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	General Solution Of Partial Differential Equations	1) The linear equation involving more than two independent variables 2) Geometrical meaning of the linear partial differential equation 3) Special methods of solution applicable to certain standard forms, General method of solution.
12	00	12		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Higher Order Partial Differential Equations	1) Partial equations of the second order 2) General method of solving $Rr+Ss+Tt=V$ 3) The homogeneous equation with constant coefficients 4) The non-homogeneous equation with constant coefficients
12	00	12		

G. B. Kolhe

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Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. S. M. Malavi

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Basic Algebra and Complex Numbers

Month: August			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3. Matrices:	1 Types of Matrix, Transpose of matrix, Conjugate of matrix, Transposed-conjugate of a matrix 2. Row reduction and echelon forms 3. The rank of a matrix and applications, Inverse of matrix
05	04	09		
Month: September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	3. Matrices:	4 Eigenvalues and eigenvectors of matrix 5. Cayley-Hamilton theorem and its application
04	04	08		
Month : October			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. System of linear equations	1. Homogeneous linear equations 2. Nature of solution of $AX = 0$
05	04	09		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. System of linear equations	3. Non – Homogeneous linear equations 4. Working rule for finding solution of $AX = B$
04	04	08		

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Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. S. M. Malavi

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Logical Reasoning

Month: August			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3.Syllogism	1. Distance and direction 2. Ranking/ arrangement
04	04	08		
Month: September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	3. Syllogism	3. Syllogism 4. Inequalities 5. Problems Based on Ages
04	04	08		
Month : October			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. Problems of calendar, clock, ages	1. Problems Based on Ages 2. Problems on Clock
04	04	08		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. Problems of calendar, clock, ages	3. Problems on Calendar 4. Problem solving
04	04	08		

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Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. S. M. Malavi

Programme - B.Sc. II

Semester - III

Subject: Mathematics

Course Title: Integral Calculus

Month : August			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Differentiation under integral sign and error function	1. Case of constant limits of integration 2. Problem involving one parameter 3. Problem involving two parameter
04		04		
Month : September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Differentiation under integral sign and error function	4. Leibnitz rule for differential under integral sign 5. Definition of error function 6. Complementary error functions 7. Basic properties of error functions
04		04		
Month : October			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. Fourier Series	1. Periodic functions, Even and Odd functions 2. Fourier Series Expansion of elementary functions Over ranges [0,2]
04		04		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4. Fourier Series	3. Expansions Over range $[-c, c]$ , $[0,2c]$ 4. Fourier Sine and Cosine series expansion Half Range series expansion
04		04		

*Malavi*

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Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. S. M. Malavi

Programme - B.Sc. III

Semester - V

Subject: Mathematics

Course Title: Real Analysis

Month: August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Sequence of real numbers	1. Upper bound and Lower bound 2. Sequence and subsequence 3. Limit of sequence 4. Convergent and divergent sequence 5. Limit superior and limit inferior
12		12		
Month: September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Series of real numbers	1. Series with non-negative terms 2. Alternating series 3. Absolute convergence 4. Test of absolute convergence
12		12		
Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Riemann Integral	1. The Riemann integral and properties 2. Riemann integrable functions 3. The squeeze Theorem, Classes of Riemann integrable functions 4. The fundamental Theorem.
12		12		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Improper Integral	1. Improper integral of first kind, Comparison test, - test for Convergence 2. convergence, Integral test for convergence of series Improper integral of second kind
12		12		

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**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Ms. S. M. Malavi

Program: B.Sc. III

Semester: V

Subject: Mathematics

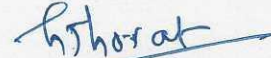
Course Title: Core Course Practical In Mathematics (CCPM-V)

Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Numerical Differentiation	1) Newton's forward differentiation for tabular value
00	10	10		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Numerical Differentiation	2) Newton's forward differentiation for Non-tabular value
00	09	09		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	Numerical Differentiation	3) Newton's backward differentiation for tabular value
00	10	10		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Numerical Differentiation	4) Newton's backward differentiation for Non-tabular value
00	09	09		



Name and Signature of Teacher

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Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. P. P. Kulkarni

Programme - B. Sc. I

Semester - I

Subject: Mathematics

Course Title: Differential Calculus

Month: August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Limit And Continuity:	1. Definition of limit of a real-valued function 2. Limit at infinity and infinite limits 3. Definition: Continuity at a point and Continuous functions on interval 4. Classification of Discontinuities (First and second kind), Removable Discontinuity, Jump Discontinuity.
08	04	12		
Month : September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Properties of continuity of Real Valued functions:	1.If a function is continuous in the closed interval $[a, b]$ then it is bounded in $[a, b]$ 2. If a function is continuous in the closed interval $[a, b]$ , then it attains its bounds at least once in $[a, b]$ . 3. Uniform Continuity
08	04	12		
Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Differentiability:	1. Differentiability of a real-valued function 2. Chain rule of differentiation 3. Mean Value theorems: Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem 4. Partial differentiation
08	04	12		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Successive differentiation	1. Successive differentiation 2. Leibnitz's theorem and its application 3. Maclaurin's and Taylor's theorems 4. Maclaurin's and Taylor's expansion for standard function 5. Indeterminate form.
08	04	12		

(Kulkarni)

Ms. P. P. Kulkarni

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*S. P. Thorat*

(Prof. S.P. Thorat)

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Vivekanand College, Kolhapur

**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. P. P. Kulkarni

Programme - B.Sc. I

Semester - I

Subject: Mathematics

Course Title: Quantitative Aptitude

Month: August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Series and Sequence	1. Series 2. Progression
04	04	08		
Month: September			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1. Series and Sequence	3. Sequence 4. Fractions
04	04	08		
Month: October			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Allegation and Mixtures	1. Percentage 2. Profit and Loss
04	04	08		
Month: November			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	2. Allegation and Mixtures	3. Allegation and Mixtures 4. Ratio and Proportion
04	04	08		

(P. P. Kulkarni)

Ms. P. P. Kulkarni

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*S.P. Thorat*

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Department of Mathematics  
Vivekanand College, Kolhapur

**Vivekanand College, Kolhapur (Autonomous)**  
**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Ms. P. P. Kulkarni

Program: B.Sc. II Semester: IV

Subject: Mathematics Course Title: Core Course Practical In Mathematics (CCPM-II)

Month: August			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Beta and Gamma Function	1) Beta and Gamma Function - I
00	08	08		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Beta and Gamma Function	2) Beta and Gamma Function - II
00	07	07		
Month: October			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Multiple Integral	3) Multiple Integral
00	08	08		
Month: November			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Laplace Transform	4) Laplace Transform
00	07	07		

(P. P. Kulkarni)

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**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics  
Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Ms. P. P. Kulkarni

Programme - B.Sc III

Semester - V

Subject: Mathematics

Course Title: Modern algebra

Month October			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Groups	
12		12		<ol style="list-style-type: none"> <li>1. Definition and Binary operations</li> <li>2. Definitions and properties, Groups elementary properties.</li> <li>3. Finite groups and composition tables.</li> <li>4. Subgroups and its properties.</li> <li>5. Generators and cyclic groups.</li> <li>6. Permutations Functions and permutations cycles and cyclic notation, even, odd, permutations, Symmetric group, Alternating groups.</li> </ol>
Month November			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Normal Subgroup, Homomorphism	
12		12		<ol style="list-style-type: none"> <li>1. Cyclic groups- elementary properties</li> <li>2. The classification of cyclic groups</li> <li>3. Isomorphisms -Definition and elementary properties.</li> <li>4. Cayley's theorem, Groups of cosets, Applications.</li> <li>5. Normal subgroups Factor groups, Criteria for existing of a coset group Inner automorphism and Dormal subgroups Simple groups</li> <li>6. The fundamental theorems of isomorphisms, applications</li> </ol>
Month : December			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Ring	
12		12		<ol style="list-style-type: none"> <li>1. Definition and basic properties</li> <li>2. Fields, Integral domains, divisors of zero and cancellation laws</li> <li>3. The characteristic of a ring, some non commutative rings Examples</li> </ol>
Month : January			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Homomorphisms in Rings	
12		12		<ol style="list-style-type: none"> <li>1. matrices over a field, The real quaternions</li> <li>2. Homomorphism of rings Definition and elementary properties</li> <li>3. Maximal and Prime ideals, Prime fields</li> </ol>

(P.P.Kulkarni)

Ms. P. P. Kulkarni.

Name and Signature of Teacher



S.P.Thorat

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Department of Mathematics  
Vivekanand College, Kolhapur

**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Miss Mrudula G. Goliwadekar

Programme - B.Com. I

Semester - I

Subject: Mathematics

Course Title: Business Mathematics -I

Month: July-August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Set Theory	1. Definition of Set, Operations on set, 2. Relations 3. Types of Relations and Types of Functions 4. Venn Diagram and Examples 5. Domain and range
14	-	14		
Month: August-September			Module/Unit: II	Sub-units planned
Lectures	Practicals	Total	Introduction to A.P , G.P , Ration, Percentage and Interest	1. Definition of A.P. and G.P with examples 2. Definition of Ration and Proportion with Examples 3. Definition of Percentage and Examples 4. Different Types of Interests and Examples
16	-	16		

Name and Signature of Teacher

(Mrudula G. Goliwadekar)



(Prof. S.P. Thorat)

HEAD

Department of Mathematics  
Vivekanand College, Kolhapur

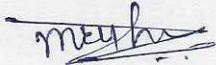
**Vivekanand College, Kolhapur (Autonomous)**  
**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Ms. M. G. Goliwadekar

Program: B.Sc. II Semester: III

Subject: Mathematics Course Title: Core Course Practical In Mathematics (CCPM-III)


Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Introduction	1) Introduction to Scilab 2) Matrix
00	16	16		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	Matrices	1) Accessing elements of matrices 2) Submatrix
00	15	15		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	Matrices and Polynomials	1) Advanced Matrix operation 2) Polynomial
00	13	13		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Graph	1) Plotting graphs 2) Introduction to Scilab Programming
00	14	14		



Name and Signature of Teacher

(Mrudula Goliwadekar)





(Prof. S.P. Thorat)

**HEAD**

Department of Mathematics  
Vivekanand College, Kolhapur

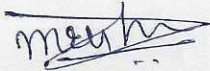
**Vivekanand College, Kolhapur (Autonomous)**  
**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Ms. M.G. Goliwadekar

Program: B.Sc. III Semester: V

Subject: Mathematics Course Title: Core Course Practical In Mathematics (CCPM-VI)


Month:			Module/Unit I	Subunits Planned
Lectures	Practical	Total	Introduction	1) Introduction to Python
00	16	16		
Month: October			Module/Unit II	Subunits Planned
Lectures	Practical	Total	Conditional statement	2) Expression and operators 3) Conditional statement
00	15	15		
Month: November			Module/Unit III	Subunits Planned
Lectures	Practical	Total	Conditional statement	4) Looping and control statement
00	17	17		
Month: December			Module/Unit IV	Subunits Planned
Lectures	Practical	Total	Functions	5) Functions
00	18	18		



Name and Signature of Teacher

(Moudula Goliwadekar)



  
(Prof. S.P. Thorat)

**HEAD**

**Department of Mathematics**  
**Vivekanand College, Kolhapur**

**Vivekanand College, Kolhapur (Autonomous)**

Department of mathematics

Academic Year: 2023-2024

**Annual Teaching Plan**

Name of the teacher: Miss Ankita M. Sathe

Programme - B.Com. I

Subject: Mathematics

Semester - I

Course Title: Business Mathematics -I

Month : September -October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Matrix	1. Definition of matrix and different types 2. Algebra of matrix 3. Properties of Determinant 4. Solution of system of linear equations by Cramer's rule
15	-	15		
Month : October-November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Linear Programming Problem	1. Important Definitions 2. Formulation of Problems in L.P.P 3. Solution by Graphical Method 4. Solution by Simplex Method
14	-	14		

Name and Signature of Teacher

(Ankita mahipat, sathe)



(Prof. S.P. Thorat)

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Department of Mathematics  
Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
**Department of mathematics**  
**Academic Year: 2023-2024**  
**Annual Teaching Plan**

Name of Teacher: Ms. A. M. Sathe

Program: B.Sc. III

Semester: V

Subject: Mathematics

Course Title: Core Course Practical In Mathematics (CCPM-IV)

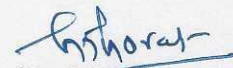
Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	Introduction to LPP	1) Graphical method for Linear Programming Problem 2) Solution of LPP using Simplex Method
00	15	15		
Month: September			Module/Unit I/II	Subunits Planed
Lectures	Practical	Total	Introduction to LPP and Transportation and Assignment-I	3) Solution of LPP using Big – M method 4) Transportation Problems (North west corner rule)
00	16	16		
Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total	Transportation and Assignment-II	5) Transportation Problems (Lowest cost Method) 6) Transportation Problems (Vogel Approximation Method)
00	15	15		
Month: November			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	Transportation and Assignment-III	7) Transportation Problems (Test For Optimality MODI Method) 8) Assignment Problems (Hungarian Method)
00	17	17		



Name and Signature of Teacher

(Ankita Mahipati Sathe)





(Prof. S.P. Thorat)

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Vivekanand College, Kolhapur