

**BHAVAN'S B.P. VIDYA MANDIR, NAGPUR.**

**CURRICULUM PLAN**

**SESSION:2019-20**

**SUBJECT:MATHEMATICS**

**STANDARD:XII**

*Bhutanani*  
Smt.Anju Bhutani  
Bhavan's B.P.Vidya  
Mandir,Civil Lines,  
Nagpur

*Shankar*  
Smt.Nirupama Shankar  
Bhavan's B.P. Vidya  
Mandir,Srikrishna  
Nagar, Nagpur

*Vandana Bisen*  
Smt.Vandana Bisen  
Bhavan's B.P. Vidya  
Mandir,Ashti  
Nagpur

*Parwati Iyer*  
Smt.Parwati Iyer  
Bhavan's B.P. Vidya  
Mandir,Trimurty  
Nagar,Nagpur

*Kirki Mishra*  
Ms.Kirki Mishra  
Bhavan's Lloyds  
Vidyaniketan,  
Wardha

*Smt.A. Shastri*  
Smt.A.Shastri  
DIRECTOR

**BHAVAN'S B. P. VIDYA MANDIR, NAGPUR.**

**CURRICULUM PLAN: 2019-2020**

**SUBJECT : MATHEMATICS**

**STD : XII**

<b>MONTH</b>	<b>WEEKLY DATES</b>	<b>NO. OF DAYS</b>	<b>NAME OF THE CHAPTER</b>	<b>TOPICS</b>	<b>ACTIVITIES/ SMART CLASS MODULES</b>	<b>ASSIGNMENT</b>	<b>LEARNING OUTCOMES</b>
April	5,8-10,12 15,16,18,20 22-27 29/30	5 days 4 days 6 days 1 day	Matrices and Determinants	Introduction and types of matrices Operations, Transpose, symmetric and skew symmetric matrices. Elementary operations Determinants and properties Area of triangle Adjoint and Inverse of a matrix. Applications of matrices and Determinants.	Educomp Module: Educomp module on the topic matrices, determinants will be shown to the students	Assignments will be given for the summer vacations.	Students would apply the concept of matrices and determinants and use their properties to solve problems
June	14,15 17-22 24-29	2 days 6 days 6 days	Relations and Functions Inverse Trigonometric Functions	Introduction Types of relations Types of functions composition of functions, invertible functions Properties of Inverse trigonometric functions			Students would be able to distinguish the various types of relations and functions. Students would be able to classify a binary operation as commutative, associative and find the its identity element and inverse of

July	<p>1-6 6 days 8-12 5 days 15-20 6 days 22-27 6 days 29,30,31 3 days</p>	26	<p>Continuity and Differentiability</p>	<p>Continuity, Derivatives Differentiability Exponential and logarithmic functions Derivatives of parametric functions, second order derivatives Mean Value Theorem</p>		<p>Recapitulation sheets will be given. <b>Periodic Test - I to be conducted on 1st July 2019.</b> <b>Portion : Matrices, Determinants, Relations and Functions(Ex.1)</b></p>	<p>Students would be able to identify domain and principal branch of TTF and apply their properties to solve problems.</p> <p>Students would be able to decide whether a given function is continuous and differentiable or not. They would be able to use different procedures of differentiation.</p>
August	<p>1-3 3 days 5-9 5 days 13,14,16 3 days 19-23 5 days 26-31 6 days</p>	22	<p>Applications of Derivatives (Contd...) Integrals</p>	<p>Tangents and Normals, Approximations, Maxima, Minima. Introduction, integration by substitution Methods of Integration Integrals of particular solution</p>		<p>Assignments will be given. <b>Periodic Test- II 5th Aug 2019.</b> <b>Portion: Inverse Trigonometric Functions, Continuity and Differentiability</b></p>	<p>Students would be able to correlate and categorise word problems as belonging to a problem on rate measurer, increasing and decreasing functions, finding maxima-minima, tangents-normals and solve it.</p>



September	3-4 2 days 9,11-14 5 days 16-20 5 days	12	Integrals(Contd...)	Integration by partial fractions, integration by parts Definite Integrals Fundamental Theorem Of Calculus ,Limit of sum, Evaluation by substitution Some properties of Definite integrals	Recapitulation sheets will be given.	They would be able to examine a given integrals and evaluate by applying appropriate method .
<b>Portion Completion : - 17th Sept. 2019</b>						
<b>Half yearly Examination - 23rd Sept. to 5th Oct. 2019 Portion: Matrices Determinants, Relations and Functions, Inverse Trigonometric Functions, Continuity and Differentiability, Applications of Derivatives, Indefinite Integrals.</b>						
October	14-17 4 days 19,21-23 4 days	8	Application of Integrals	Introduction, Area under simple curves Area between two curves.	Extra questions on the concepts of Integration and its application.	Students would be able to draw the correct curve and infer the area under the given curve by using definite integrals.

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November	<p>1,2 2 days 4-8 5 days 11,13-16 5 days 18-23 6 days 25-26 2 days</p>	20	<p>Differential equations  Vector Algebra  Three Dimensional Geometry</p>	<p>Introduction of D. equations. General, particular solutions, Formation of DE, Methods of solving First order, First degree DE Introduction Some basic concepts Types of Vectors Addition Of Vectors Multiplication of Vector by scalar Product of two vectors Scalar Triple Product Introduction, Direction Cosines and ratios, Equation of line in space, Angle between two lines, Shortest distance, Coplanarity of two lines. Equations of plane, angle b/n line and plane, angle b/n two planes, distance of a point from a plane angle b/n two planes, distance of a point from a plane.</p>	<p>Educom module: Three Dimensional Geometry :- Direction cosines and direction ratios of a line, equation of line in space, angle between two lines, Plane, coplanarity of two lines, angle between two planes, angle between line and plane.</p>	<p>Assignments on value based questions will be given. <b>Periodic Test-III on 11th Nov.2019</b> <b>Portion : Derivative as a rate measurer, Tangents and Normals, Approximations, Integrals(Definite &amp; Indefinite)</b></p>	<p>The students would be able to form and solve the differential equations.  They would be able to comprehend and apply the basics of vector algebra, their addition, scalar product, vector product, scalar Triple Product etc. Students would use various types of equations of lines and planes in problem solving.</p>
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December	2-7 6 days 9-14,16 7 days	13	Linear Programming Probability	Introduction LPP and Mathematical formulation types of LPP Conditional Probability, Multiplication theorem, Independent Events, Baye's Theorem, Random variable and Distribution	Educom module: Probability:- Introduction, conditional probability, multiplication theorem, independent events, Baye's theorem, random variable	Recapitulation sheets will be given.	Students would be able to form various types of equations of planes in vector and cartesian forms. Students would be able to formulate a given LLP and would be able to solve it graphically. Students would be able to find the conditional probability, they would study about baye's theorem and random variable.
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**Portion Completion : - 16th DEC 2019**

Civil Lines	Srikrishna Nagar	Ashiti	Trimurty Nagar	Wardha
Ms. Charu Tandon <i>fk</i>	Mr. Santoshanand Sharma <i>AS</i>	Mr. Atul Deo <i>Atul Deo</i>	New Teacher <i>Atul Deo</i>	Mr. Chandrashekhar <i>Chandrashekhar</i>
Mr. Rajkumar Faye <i>Rajkumar Faye</i>	Mrs. Vishakha Naphade <i>Vishakha Naphade</i>	Mrs. Rashmi Kumar <i>Rashmi Kumar</i>	<i>Rashmi Kumar</i>	<i>Chandrashekhar</i>
Principal(CL) <i>Charu Tandon</i>	Principal(SKN) <i>Vishakha Naphade</i>	Principal(Ashiti) <i>Rashmi Kumar</i>	Principal(TN) <i>Atul Deo</i>	Principal(Wd) <i>Chandrashekhar</i>

*21/12/2019*  
**Smt. A . Shastri**  
**(DIRECTOR)**



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Sr. No.	Name of Chapter	1 Mark Questions	2 Marks Questions	4 Marks Questions	6 Marks Questions	Total Marks
1.	TANGENTS AND NORMALS	1 QUESTION	1 QUESTION	--	--	3 MARKS
2.	RATE MEASURER	1 QUESTION	1 QUESTION	1 QUESTION	--	5 MARKS
3.	APPROXIMATIONS	1 QUESTION	1 QUESTION	--	--	3 MARKS
4.	INDEFINITE INTEGRALS	1 QUESTION	1 QUESTION	--	1 QUESTION	9 MARKS
5.	DEFINITE INTEGRALS	1 QUESTION	--	1 QUESTION	1 QUESTION	5 MARKS
TOTAL						

SUB-MATHEMATICS  
STD-XII  
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BLUE PRINT - PERIODIC TEST-III EXAMINATION(1<sup>st</sup> NOV.2019)

Sr. No.	Name of Chapter	1 Mark Questions	2 Marks Questions	4 Marks Questions	6 Marks Questions	Total Marks
1	INVERSE TRIGONOMETRIC FUNCTIONS	3 QUESTION	-----	1 QUESTION	--	7 MARKS
2	CONTINUITY	--	2 QUESTIONS	--	1 QUESTION	4 MARKS
3	DIFFERENTIABILITY	2 QUESTIONS	1 QUESTION	1 QUESTION	1 QUESTION	14 MARKS
TOTAL						

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BLUE PRINT - PERIODIC-II EXAMINATION(5<sup>th</sup> AUGUST 2019)

Sr. No.	Name of Chapter	1 Mark Questions	2 Marks Questions	4 Marks Questions	6 Marks Questions	Total Marks
1	MATRICES	1 MARK QUESTIONS	2 QUESTIONS	--	1 QUESTION	12 MARKS
2	DETERMINANTS	2 QUESTIONS	1 QUESTION	1 QUESTION	--	8 MARKS
3	RELATIONS	1 QUESTIONS	--	1 QUESTION	--	5 MARKS
TOTAL						

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BLUE PRINT - PERIODIC TEST-I EXAMINATION(1<sup>ST</sup> JULY 2019)

Ch. No.	Name of Chapter	1 Mark Questions	2 Marks Questions	4 Marks Questions	6 Marks Questions	8 Marks Questions	Total Marks
1	RELATIONS AND FUNCTIONS	2 QUESTION	1 QUESTION	1 QUESTION*	-----	-----	8 MARKS
2	INVERSE TRIGONOMETRIC FUNCTIONS	2 QUESTION	1 QUESTION	1 QUESTIONS	-----	-----	8 MARKS
3&4	MATRICES AND DETERMINANTS	5 QUESTION	1 QUESTION	1 QUESTION	1 QUESTION*	-----	17 MARKS
5	CONTINUITY AND DIFFERENTIABILITY	4 QUESTION	1 QUESTION	1 QUESTION*	1 QUESTION	-----	16 MARKS
6	APPLICATION OF DERIVATIVES	4 QUESTION	1 QUESTION	1 QUESTIONS	1 QUESTION*	-----	16 MARKS
7	INTEGRALS	3QUESTION	1 QUESTION	1 QUESTION*	1 QUESTION	-----	15 MARKS
TOTAL							

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BLUE PRINT - HALF YEARLY EXAMINATION: [23<sup>rd</sup> SEPT. 2019]

NOTE : (\*) INDICATES OPTIONAL QUESTIONS FOR THE PARTICULAR CHAPTERS.

# LAB ACTIVITIES

## SUBJECT: MATHEMATICS

### STD: XII

### SESSION: 2019-20

S.NO.	NAME OF THE ACTIVITY
1	To verify that Relation R in the set L of all lines in the plane such that $l \perp m$ is not an Equivalence Relation
2	To verify that Relation R in the set L of all lines in the plane such that $l \parallel m$ is an Equivalence Relation
3	To demonstrate a function which is not one-one but onto.
4	To demonstrate a function which is one-one but not onto.
5	To sketch the graph of $a^x$ and $\log_a x$
6	To check the continuity of a function at a point $x = c$
7	To verify that amongst all rectangles of same perimeter square has maximum area.
8	To verify geometrically that $\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$
9	To verify angle in a semicircle in right angle using vectors.
10	To explain the computation of conditional probability using a pair of dice.

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VIVA-VOCE	2 MARKS
ASSESSMENT OF THE ACTIVITY PERFORMED, DURING THE YEAR END TEST	3 MARKS
THE ACTIVITIES PERFORMED BY THE STUDENT THROUGHOUT THE YEAR AND RECORD KEEPING	5 MARKS

**ACTIVITIES**

**ASSESSMENT OF MATHEMATICS**

MATHEMATICS ACTIVITIES	10 MARKS
PERIODIC TEST (Three Periodic Tests each of 25 marks to be conducted and brought down to 10 marks. Average of best two out of three to be taken)	10 MARKS
INTERNAL ASSESSMENT	20 MARKS

TYPE OF QUESTION	MARKS PER QUESTION	TOTAL NO. OF QUESTIONS	TOTAL MARKS
VSA	1	20	20
SA	2	6	12
LA-I	4	6	24
LA-II	6	4	24
<b>TOTAL</b>		<b>36</b>	<b>80</b>

**QUESTIONWISE BREAK-UP**

THEORY	80 MARKS
INTERNAL ASSESSMENT	20 MARKS
TOTAL	100 MARKS

**SESSION: 2019-20**

**STD: XI and XII**

**SUBJECT: MATHEMATICS**

**PAPER PATTERN**