GOVT SHIVALIK COLLEGE NAYA NANGAL
TEACHING PLAN OF MATHEMATICS
B.SC/ B.A :- I (SEM I)
SESSION : - 2024-25

PAPER-ALGEBRA AND TRIGONOMMETRY   **CODE :- MTHB1101T**
TEACHER NAME :- DR. HEMANT KUMARI   **MATERIALS :- White board, Use of Projector and**
                                                    Power Point Presentation

REFERENCE :-
Shanti Narayan and P.K Mittal : A Text Book of Matrices, S. Chand
K . B. Datta: Matrix and Linear Algebra

Sr. No.	DATES (Wepekly)	Topics which will be covered
1.	**7-11 Jan**	Hermitian and Skew-Hermitian matrices, linear dependence of row and column vectors. **Class Test of the above topic**
2.	**13-18 Jan**	Row rank, column rank and rank of a matrix and their equivalence. **(Power Point Presentation of the given topic)**
3.	**20-25 Jan**	Theorems on consistency of a system of linear equations (bothhomogeneous and non-homogeneous). **Class Test of the above topic**
4.	**27 Jan - 1Feb**	Eigen-value, eigen-vector and characteristic equation of a matrix. **(Power Point Presentation of the given topic)**
5.	**3-8 Feb**	Cayley -Hamilton theorem and its use in finding inverse of a matrix. Diagonalization. **ASSIGNMENT ON THE TOPIC**
6.	**10-15 Feb**	**SECTION-A** Introduction to De Moivre's theorem, De Moivre's theorem
7.	**17-22 Feb**	Application of De Moivre's theorem including primitive n^{th} root of unity. **Class Test of the above topic**
8.	**24 Feb -1 Mar**	Expansions of $\sin n\theta$, $\cos n\theta$,$\sin^n\theta \cos^n\theta$, $(n \in N)$.
9.	**3-8 Mar**	The exponential, logarithmic, direct and inverse circular . **(Power Point Presentation of the given topic)**
10.	**10-15 Mar**	**MST WILL BE HELD.**
11.	**17-22 Mar**	Summation of series including Gregory Series. **Class Test of the above topic**
12.	**24-29 Mar**	Hyperbolic functions of a complex variable. **(Power Point Presentation of the given to**
13.	**1 -5 April**	**Revise the whole syllabus**
14.		

Govt Shivalik College Naya Nangal

Teaching Plan Session (2024-25)

CLASS: B.Sc I SEM (II)   **CODE :- MTB -1201T**
TEACHER NAME :- DR. HEMANT KUMARI   **PAPER: CALCULUS**

MATERIALS :- White board, Use of Projector and   Power Point Presentation
REFERENCE :-

- **J.D. Murray & M.R. Spiegel : Theory and Problem of Advanced Calculus**
- **Shanti Narayan : Differential Calculus**

Sr. No.	DATES (WEEKLY)	Topic which will be covered
1.	**7-11 Jan**	**Section A: Properties of Real Numbers** : order Property of real numbers **Test of above topic**
2.	**13-18 Jan**	Bounds, l.u.b and g.l.b . order completeness property of real numbers.
3.	**20-25 Jan**	Archimedian property of real numbers. Limits : definition of the limit of a function. **Power Point Presentation given to the students**
4.	**27 Jan - 1Feb**	Basic properties of limits, Infinite limits, indeterminate forms.
5.	**3-8 Feb**	**Continuity** : Continuous functions, types of discontinuities. **Test of continuous function**
6.	**10-15 Feb**	Sign of a function in a neighborhood of a point of continuity, intermediate value theorem.. **Power Point Presentation given to the students**
7.	**17-22 Feb**	Maximum and Minimum value theorem. **Class Test**
8.	**24 Feb -1 Mar**	**Section B : Mean Value Theorems** : Rolle's theorem ,Lagrange's mean value theorem . **Assignment given to the students (Rolle's &Lagrange's theorem)**
9.	**3-8 Mar**	Cauchy's mean value theorem , their geometric interpretation and applications. **Test of above theorem**
10.	**10-15 Mar**	Taylor's theorem and their applications. **Power Point Presentation**
11.	**17-22 Mar**	Maclaurin's theorem with various form of remainders atheir applications. **Test of above topics**
12.	**24-29 Mar**	Hyperbolic, inverse hyperbolic functions of a real variable and their derivatives. **Revise the topic**

GOVT SHIVALIK COLLEGE NAYA NANGAL
TEACHING PLAN OF MATHEMATICS
B.SC/ B.A :- II (SEM III)
SESSION : - 2024-25

PAPER : - ADVANCED CALCULUS   **CODE :- MTHB210T**
TEACHER NAME :- DR. HEMANT KUMARI   **MATERIALS :- White board, Use of Projector and Power Point Presentation**
REFERENCE :-Malik and Arora; Mathematical Analysis.
            Shanti Narayan; Mathematical Analysis
            Thomas and Finney; Calculus and Analytical Geometry

Sr. No.	DATES (Weekly)	Topics which will be covered
1.	1-5 Aug	**SECTION – A** Limit and Continuity of Functions of several variables. **Class Test of the above topic**
2.	7-12 Aug	Differentiability of real-valued functions of two variables. **(Power Point Presentation of the given topic)**
3.	14-19 Aug	Partial differentiation, Jacobians and their properties. **Class Test of the above topic**
4.	21-26 Aug	Schwarz's and Young's theorems. Euler's theorem on homogenous functions. **(Power Point Presentation of the given topic)**
5.	28 Aug - 02 Sep.	Taylor's theorem for functions two variables and error estimation. **Class Test of the above topic**
6.	4-9Sep	Maxima and Minima, Lagrange's multiplier method. **(Power Point Presentation of the given topic)**
7.	11-16 Sep	**SECTION –B** Double and Triple Integrals. **Class Test of the above topic**
8.	18-23 Sep	Change of order of integration in double integrals. **(Power Point Presentation of the given topic)**
9.	25-30 Sep	Change of variables. **Class Test of the above topic**
10.	2-7 Oct	Applications to evaluation of areas and Volume **(Power Point Presentation of the given topic)**
11.	9-14 Oct	Centre of Gravity **Class Test of the above topic**
12.	16-21 Oct	Moment of Inertia**.** **(Power Point Presentation of the given topic)**
13.	23-28 Oct	**MST**
14.	6-14Nov	**Revise the whole syllabus**

GOVT SHIVALIK COLLEGE NAYA NANGAL
TEACHING PLAN OF MATHEMATICS
B.SC/ B.A :- II (SEM IV)
SESSION : - 2024-25
PAPER : - MATHEMATICAL METHODS   CODE :- MTHB2201T
TEACHER NAME :- DR. HEMANT KUMARI   MATERIALS :- White board, Use of Projector and Power Point Presentation

REFERENCE :-
Shanti Narayan and P.K Mittal : Scope as in A course of Mathematical Analysis.
A.R. Vasishtha & Dr. R.K. Gupta : Scope as in Integral transforms.

Sr. No.	DATES (Wepekly)	Topics which will be covered
1.	7-11 Jan	**SECTION- A Fourier Series :** Fourier Series, Dirichlet's conditions, Fourier Series for even and odd functions. **Class Test of the above topic**
2.	13-18 Jan	Half range Fourier Series. **Fourier Transforms :** Fourier integral formula , fourier transform,. Inverse theorem for Fourier transform . **(Power Point Presentation of the given topic)**
3.	20-25 Jan	Fourier sine and cosine transforms and their inversion formulae. **(Power Point Presentation of the given topic)**
4.	27 Jan - 1Feb	Linear property of Fourier transform, . Change of scale property. Shifting theorem **Class Test of the above topic**
5.	3-8 Feb	Modulation theorem, Convolution theotem of Fourier transforms, Parseval's identity. **(Power Point Presentation of the given topic)**
6.	10-15 Feb	Finite Fourier sine transform, Inversion formula for sine transform. **Class Test of the above topic**
7.	17-22 Feb	Finite Fourier cosine transform, Inversion formula for cosine transform. **(Power Point Presentation of the given topic)**
8.	24 Feb -1 Mar	**SECTION - B Laplace Transforms :** Definition of Laplace transform. Linearity property, Existence of Laplace transform . **Class Test of the above topic**
9.	3-8 Mar	Functions of exponential order and of class A. First and second shifting theorems of Laplace transform. **(Power Point Presentation of the given topic)**
10.	10-15 Mar	Change of scale property, Laplace transform of derivatives, Initial value problems. **Class Test of the above topic**
11.	17-22 Mar	Laplace transform of integrals, Multiplication by t, Division by t , Laplace transform of periodic functions. **(Power Point Presentation of the given topic)**
12.	24-29 Mar	Definition of Inverse Laplace transform, Linearity property, First and second shifting theorems of inverse Laplace transforms. **Class Test of the above topic**
13.	1 -5 April	**MST**
14.	7-12 April	Change of scale property, Division by p, Convolution theorem , Heaviside's expansion formula. **(Power Point Presentation of the given topic)**
15.	16-30 April	**Revise the whole syllabus**
	1 May……..	

Govt Shivalik College Naya Nangal

Teaching Plan Session (2024-25)

CLASS: B.Sc III SEM (V)
TEACHER NAME : DR. HEMANT KUMARI   **PAPER: Mathematical Methods –I and Discrete Mathematics-I**

Materials :- White board, Use of Projector and Power Point Presentation
REFERENCE :- Shanti Narayan : Scope as in A course of Mathematical Analysis.

Dr. R.K.Gupta : Scope as in Integral transforms.

SR.No.	DATES (weekly)	Topic which will be covered
1.	**1-5 Aug**	**SECTION-A Fourier series :** Fourier series, Theorems, Dirichlet's conditions, Fourier series for even and odd functions.**Class Test of the above topic**
2.	**7-12 Aug**	Half range Fourier series, Other forms of Fourier series.
3.	**14-19 Aug**	**Fourier transforms :** Dirichlet's conditions, Fourier integral formula (without proof),
4.	**21-26 Aug**	Fourier transform, Inverse Theorem for Fourier transform.
5.	**28 Aug - 02 Sep.**	Fourier sine and cosine transforms and their inversion formulae. Linearity property of Fourier transforms.**(Power Point Presentation of the given topic)**
6.	**4-9Sep**	Change of scale property, Shifting theorem, Modulation theorem.
7.	**11-16 Sep**	Convolution theorem of Fourier transforms, Parseval's identity, Finite Fourier sine transform. **Class Test of the above topic**.
8.	**18-23 Sep**	Inversion formula for sine transform, Finite Fourier cosine Transform, Inversion formula for cosine transform.**(Power Point Presentation of the given topic)**
9.	**25-30 Sep**	**SECTION-B** Graphs and Planar Graphs-Basic Terminology. Multigraphs. Weighted Graphs.
10.	**2-7 Oct**	Paths and Circuits Shortest paths. Eulerian Paths and Circuits. Travelling Salesman Problem.**(Power Point Presentation of the given topic)**
11.	**9-14 Oct**	Planar Graphs. Trees. Definition and Examples of Finite State Machines-Equivalent Machines. **Class Test of the above topic**
12.	**16-21 Oct**	Finite State Machines as Language Recognizer.
13.	**23-28 Oct**	**M.S.T.**
14.	**6Nov…..**	**Revision**

Govt Shivalik College Naya Nangal

Teaching Plan Session (2024-25)

CLASS: B.Sc III SEM (VI)
TEACHER NAME : DR. HEMANT KUMARI   PAPER: Mathematical MethodsII and Discrete Mathematics-II

Materials :- White board, Use of Projector and   Power Point Presentation
REFERENCE :- Shanti Narayan : Scope as in A course of Mathematical Analysis.

Dr. R.K.Gupta :   Scope as in Integral transforms.

SR.No.	DATES	Topic which will be covered
1.	**7-11 Jan**	**SECTION - A Laplace transforms:** Definition of Laplace transform, linearity property- Piece-wise continuous function.Existence of Laplace transform.
2.	**13-18 Jan**	Functions of exponential order and of class A. .**Class Test of the above topic**
3.	**20-25 Jan**	First and second shifting theorems of Laplace transform, Change of scale property
4.	**27 Jan - 1Feb**	Laplace transform of derivatives, Initial value problems, Laplace transform of integrals.**(Power Point Presentation of the given topic)**
5.	**3-8 Feb**	Multiplication by t, Division by t, Laplace transform of periodic functions and error function.
6.	**10-15 Feb**	Beta function and Gamma functions.**(Power Point Presentation of the given topic)**
7.	**17-22 Feb**	Definition of Inverse Laplace transform, Linearity property.
8.	**24 Feb -1 Mar**	First and second shifting theorems of inverse Laplace transform, Change of scale property.**Class Test of the above topic**
9.	**3-8 Mar**	Division by p, Convolution theorem, Heavisides'expansion formula (with proofs and applications).
10.	**10-15 Mar**	**SECTION-B(DISCRETE-2)** Brief review of Groups and Rings. Boolean Algebras-Lattices and Algebraic Structures.
11.	**17-22 Mar**	Duality. Distributive and Complemented Lattices. Boolean Lattices and Boolean Algebras.**Class Test of the above topic**
12.	**24-29 Mar**	Boolean Functions and Expressions.
13.	**1 -5 April**	Design and Implementation of Digital Networks. Prepositional Calculus.**Class Test of the above topic**
14.	**7-12 April**	Switching Circuits.
15.	**16-30 April**	**M.S.T. Revision**