

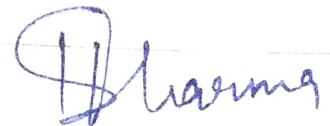
SHAHEED SMARAK P.G. GOVT. COLLEGE TIGAON (FARIDABAD)

LESSON PLAN FOR SESSION 2021-22. (Even Semester)

Subject Name with code and semester:--- Sequences and Series, BM-241 (Semester IV)

Teacher Name:--- Dr. Harvion

MONTH	TOPIC
March 2022.	Boundedness, least upper bound, greatest lower bound of a set, neighbourhoods, interior points, isolated points, limit points, open set, closed set, interior and closure of a set of real numbers.
April 2022.	Bolzano-Weierstrass Theorem, Open-Cover, Compact set and Heine-Borel Theorem, Sequences and convergence, theorem on limits, bounded/monotonic/cauchy sequence and principal of convergence, Subsequences and subsequential limits, Convergence and divergence of series, Comparison test, Cauchy's principle for series, geometric series, Hyperharmonic/p-series.
May 2022	D-Alembert's ratio test, Rabbe's Test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's nth root test, Gauss-test, Cauchy's integral test, Cauchy's condensation test, Leibnitz test, absolute and conditional convergence, Abel's test, Dirichlet's test, rearrangement of terms of series.
June 2022.	Dirichlet's Theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem, Multiplication of series, Cauchy's product of series. Convergence and absolute convergence of infinite product.



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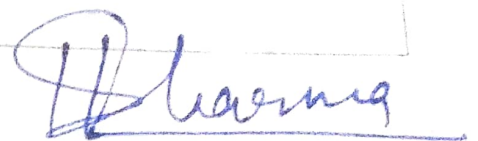
SHAHEED SMARAK P.G. GOVT. COLLEGE TIGAON (FARIDABAD)

LESSON PLAN FOR SESSION 2021-22. (Even Semester)

Subject Name with code and semester:--- Number Theory and Trigonometry (BM-121) (Sem-5)

Teacher Name:--- Dr. Harsham

MONTH	TOPIC
March 2022.	Divisibility, G.C.D, L.C.M, Fundamental Theorem of Arithmetic Linear Congruence, Fermat's Theorem Wilson's Theorem and Converse.
April 2022.	Linear Diophantine eqn in two variables, CRS, PPS method Euler ϕ -function, Chinese remainder Theorem Quadratic residue, Legendre Symbol, Gauss Lemma Gauss Reciprocity law, Greatest integer function The Möbius function & Möbius inversion formula No. of divisors and sum of divisors of a natural number.
May 2022.	De-Moivre's Theorem and its applications. Expansion of trigonometrical functions. Direct Circular and hyperbolic functions and their properties. Inverse circular and hyperbolic functions and their properties.
June 2022	Logarithm of a complex quantity Gregory's series, Summation of Trigonometric series



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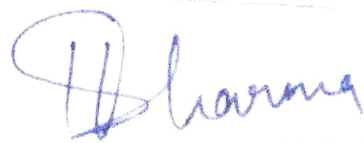
SHAHEED SMARAK GOVT. P.G. COLLEGE TIGAON (FARIDABAD)

LESSON PLAN FOR SESSION 2021-22. (Even Semester)

Subject Name with code and semester:--- Mathematical Foundations of Computer Science (BCA - Paper 108)

Teacher Name:--- Dr. Harvorn

MONTH	TOPIC
March 2022	<p>☐ Preparing frequency distribution table, Measure of Central Tendency, Mean, Mode, Median</p>
April 2022	<p>Measure of Dispersion: Range, Variance and Standard Deviations, Correlation and Regression, Algorithms, merits and demerits, Exponentiation, Fast computation of exponentiation, Linear Search, Binary Search, "Big Oh" notation, Worst case. Advantage of logarithmic algorithm over linear, Complexity. Graphs & its types and degree subgraph, Isomorphic and Homomorphic graphs. Adjacent and incidence matrices.</p>
May 2022	<p>Path Circuit: Eulerian, Hamiltonian. Trees: Minimum distance trees, Minimum weight and Minimum distance spanning trees. Recursion: Recursively defined function, Merge sort, Insertion sort, Bubble sort and Decimal to Binary. LHRR, LHRRWCCs, DCRR. Recursive procedures</p>
June 2022	<p>Principal of Mathematical Induction, GCD, Euclidean Algorithm, Fibonacci Numbers, Congruence and equivalence relations, Public Key encryption schemes.</p>



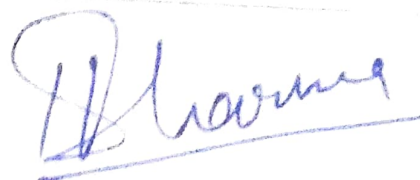
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LESSON PLAN FOR SESSION 2021-22. (Even Semester)

Subject Name with code and semester:--- Linear Algebra, BM 362
(Sem-6)

Teacher Name:--- Dr. Harvorn

MONTH	TOPIC
March 2022	Vector spaces, subspaces, Sum and Direct Sum of subspaces, Linear Span, Linearly Independent and dependent subsets, Finitely Generated vector space.
April 2022	Finite Dimensional vector spaces, Basis, Dimension, Quotient Space, Homomorphism (Linear Transformation) of vector space, Vector space of all linear transformations, Dual Spaces, Bidual spaces, annihilator of subspaces, Null space, Range space of a linear transformation, Rank Nullity Theorem
May 2022	Algebra of linear transformation, Minimal polynomial, Singular and non-singular transformation, Matrix of linear transformation, Change of basis, Eigen values and Eigen vectors of linear transformation, Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal Complements, sets and fields
June 2022	Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformation



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SHAHEED SMARAK GOVT. P.G. COLLEGE TIGAON (FARIDABAD)

LESSON PLAN FOR SESSION 2021-22.

Subject Name with code and semester:---

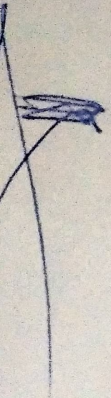
Dynamics (12ESM1353)

Teacher Name:---

Dr. Robin Singh

B.Sc. 6th Semester

MONTH	TOPIC
March, 2022	1. Velocity and acceleration along radius, transverse, tangential and total directions. 2. Relative velocity and acceleration 3. Simple harmonic motion 4. Elastic string.
April; 2022	(i) Mass, Momentum and force. (ii) Newton's Laws of motion. (iii) Work, Power and energy. (iv) Definition of conservative forces and non conservative forces.
May 2022	(i) Motion on smooth and rough plane curves (ii) Projectile motion of a particle in a plane (iii) Vector angular velocity.
June 2022	(i) General motion of a rigid body. (ii) Center of mass (iii) Rotational Laws of motion (iv) Motion of a particle in three dimensions. (v) Acceleration in terms of different coordinate systems.



Subject Name with code and semester:--- Mathematics ; paper : 12-

Teacher Name:--- Dr. Rajbir Singh BSM 122 (O.D.E.)

MONTH	TOPIC
March, 2022	<p><u>Section - I</u></p> <p>1. biometrical meaning of differential equation. 2. Exact differential eqs. 3. Integrating factors. 4. First order higher degree equations. 5. Solvable for x, y, p. Lagrange's equations. 6. Clairaut's equations. 7. Singular solutions.</p>
April, 2022	<p><u>Section - II</u></p> <p>Orthogonal trajectories in Cartesian coordinates and polar coordinates. 2. Self orthogonal family of curves. 3. Linear differential equations with constant coefficients. 4. Homogeneous linear differential equations. 5. Equations reducible to homogeneous linear ordinary differential equations.</p>
May 2022.	<p><u>Section - III</u></p> <p>1. Linear differential equations of second order. 2. Reduction to normal form. 3. Transformation of the equation by changing the dependent variable. 4. Separation of variables. 5. Reduction of order. 6. Method of variation of parameters. 7. Method of undetermined coefficients.</p>
June ; 2022	<p><u>Section - IV</u></p> <p>1. ordinary simultaneous differential equations. 2. Solution of simultaneous differential equations using operators $x(\frac{d}{dx})$ or $t(\frac{d}{dt})$ etc. 3. Simultaneous eqs of the form $\frac{dy}{dx} = P(x,y) + Q(x,y)R$. 4. Total differential equations. 5. Clairaut's form. Method of solving $Pdx + Qdy + Rdz = 0$ to be exact. 6. Homogeneous method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable small. 7. Method of auxiliary eqs.</p>

Subject Name with code and semester:---

Business Mathematics - II

Teacher Name:---

Dr. Rajbir Singh
Code: - 2.02, 2nd Sem
E. Cam

MONTH

TOPIC

- (i) Differentiation. Section
- (ii) Application of differentiation.

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(i) Rules and Determinants. Definition of matrices, Types of matrices. 2. Notation of matrices. 3. Calculation of minors of determinants like third order. 4. Proof of a matrix B of constants row and column after a row. 5. Finding inverse matrix through adjoint and determinants or by Gauss-Jordan method. 6. Solving of system of linear eqns having unequal RHS and unknowns were non integers.

Section -

- (i) Compound interest and annuities
 - (ii) Simple interest types of interest rate
 - (iii) Concept of Present Value and amount of sum (PV)
 - (iv) Types of annuities (i) present Value and amount of an annuity including and compound
- Section
- (i) Ratio
 - (ii) Preparation and percentage.
 - (iii) Profit and Loss.

