**LESSON PLAN B.A. /B.Sc.IInd Sem. (Maths)**

**Session: 2023-24**

**Sub. :** Number Theory and Trigonometry **Name of Teacher:** Dr Vinod Kumar

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| Month | Week | Description |
| Jan. | Week 1  Week 2  Week 3    Week 4 | Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple) Primes,  Fundamental Theorem of Arithemetic. Linear Congruences, Fermat’s theorem. Wilson’s theorem and its converse.  Linear Diophanatine equations in two variables, TEST,Assignment |
| Feb. | Week 1  Week 2  Week 3  Week 4 | Complete residue system and reduced residue system modulo m. Euler’s ø function Euler’s generalization of Fermat’s theorem.  Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function [x]. The number of divisors and the sum of divisors of a natural number n (The functions d(n) and V(n)). Moebius function and Moebius inversion formula. |
| March | Week 1  Week 2  Week 3  Week 4 | De Moivre’s Theorem and its Applications. assignment  Expansion of trigonometrical functions.  Direct circular functions , Hyperbolic functions their properties.  Holidays |
| April | Week 1  Week 2  Week 3  Week 4 | Inverse circular ,Assignment  hyperbolic functions and their properties.  Logarithm of a complex quantity. Test  Gregory’s series. Summation of Trigonometry series |

**LESSON PLAN B.A. /B.Sc. IVth Sem. (Maths)**

**Session: 2023-24**

**Sub. :** Programming in C and Numerical Analysis **Name of Teacher:** Dr Vinod Kumar

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| Month | Week | Description |
| Jan. | Week 1  Week 2  Week 3  Week 4 | Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson’s method.  Newton’s iterative method for finding pth root of a number, Order of convergence of above methods.  Simultaneous linear algebraic equations: Gauss-elimination method, Assignment and test |
| Feb. | Week 1  Week 2  Week 3  Week 4 | Gauss-Jordan method, Assignment  Triangularization method (LU decomposition method).  Crout’s method, Cholesky Decomposition  Iterative method, Jacobi’s method, TEST  Gauss-Seidal’s method, Relaxation method. |
| March | Week 1  Week 2  Week 3  Week 4 | Programmer’s model of a computer, Algorithms, Flow charts, Data types,  Operators and expressions, Input / outputs functions. Assignment and test  Decisions control structure: Decision statements, TEST  Logical and conditional statements, Implementation of Loops, Switch Statement &Case control structures.  Holidays |
| April | Week 1  Week 2  Week 3  Week 4 | Functions, Assignment and test Preprocessors and Arrays Strings:  Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters.  Structures: Definition, using Structures, use of Structures in Arrays and  Arrays in Structures. Pointers: Pointers Data type, Pointers and Arrays, |

**LESSON PLAN B.A. /B.Sc.VI Sem. (Maths)**

**Session: 2023-24**

**Sub. :** Real and Complex Analysis **Name of Teacher:** Dr Vinod Kumar

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| Month | Week | Description |
| Jan. | Week 1  Week 2  Week 3  Week 4 | Jacobians, Beta and Gama functions, Double and Triple integrals,  Dirichlets integrals, change of order of integration in double integrals. Assignment and test  Fourier’s series: Fourier expansion of piecewise monotonic functions,  Properties of Fourier Co-efficients, Dirichlet’s conditions, |
| Feb. | Week 1  Week 2  Week 3  Week 4 | Parseval’s identity for Fourier series, Fourier series for even and odd functions,  Half range series, Change of Intervals. Assignment  Extended Complex Plane, Stereographic projection of complex numbers,  continuity and differentiability of complex functions, Test |
| March | Week 1  Week 2  Week 3  Week 4 | Analytic functions, Assignment and test  Cauchy-Riemann equations. Harmonic functions. Test  Mappings by elementary functions:  Translation, rotation, Magnification and  Holidays |
| April | Week 1  Week 2  Week 3  Week 4 | Inversion, Conformal Mappings, Mobius transformations.  Fixed points, Cross ratio, Inverse Points and  critical mappings.  TEST, Revision  Assignment and test, Revision |