

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Sc / B.A Ist Semester
Session : 2023-2024
Subject : Solid Geometry

Month	Topic
August	General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of conic. System of conics. Confocal conics. Polar equation of a conic, tangent and normal to the conic. Revision and Tests
September	Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, radical plane of two spheres. Co-axial system of spheres Cones. Right circular cone, enveloping cone and reciprocal cone. Cylinder: Right circular cylinder and enveloping cylinder. Revision and Tests
October	Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoids. Polar plane of a point. Enveloping cone of a conicoid. Enveloping cylinder of a conicoid. Revision and Tests
November	Paraboloids: Circular section, Plane sections of conicoids. Generating lines. Confocal conicoid. Reduction of second degree equations. Revision and Tests
December	University Exam

Signature of the Teacher

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Sc/B.A 3rd Semester
Session : 2023-2024
Subject : Programming in C and Numerical Methods

Month	Topic
August	Programmer's model of a computer, Algorithms. Flow charts, Data types, Operators and expressions, Input / outputs functions. Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops. Revision and Tests
September	Switch Statement & Case control structures. Functions, 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, Pointers and Functions. Revision and Tests
October	Solution of Algebraic and 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, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method. Revision and Tests
November	Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method. Revision and Tests
December	University Exam

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Sc 5th Semester
Session : 2023-2024
Subject : Statics

Month	Topic
August	Composition and resolution of forces. Parallel forces. Moments and Couples. Revision and Tests
September	Analytical conditions of equilibrium of coplanar forces. Friction. Centre of Gravity. Revision and Tests
October	Virtual work. Forces in three dimensions. Poinsots central axis. Wrenches. Revision and Tests
November	Null lines and planes. Stable and unstable equilibrium. Revision and Tests
December	University Exam

Signature of the Teacher

Lesson Plan

Name of the Assistant Professor : Dr. Parveen Kumar & Dr. Sarita Banga

Class and Section : B.Sc/B.A 2nd Semester

Session : 2023-2024

Subject : Number Theory and Trigonometry

Month	Topic
January	Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple) Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat's theorem. Wilson's theorem and its converse. Linear Diophantine equations in two variables. Complete residue system and reduced residue system modulo m . Euler's ϕ function Euler's generalization of Fermat's theorem. Chinese Remainder Theorem. Revision and Tests
February	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. Revision and Tests
March	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. Revision and Tests
April	Logarithm of a complex quantity. Gregory's series. Summation of Trigonometry series. Revision and Tests
May	University Exam

Signature of the Teachers

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Sc/B.A 4th Semester
Session : 2023-2024
Subject : Numerical Analysis

Month	Topic
January	Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals: Newton's forward and Newton's backward interpolation formulae. Interpolation with unequal intervals: Newton's divided difference, Lagrange's Interpolation formulae, Hermite's Formula. Revision and Tests
February	Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula. Probability distribution of random variables, Binomial distribution, Poisson's distribution, Normal distribution: Mean, Variance and Fitting. Revision and Tests
March	Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections 1. –I & II. Eigen Value Problems: Power method, Jacobi's method, Given's method, House-Holder's method, QR method, Lanczos method. Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one-third and three-eight rule, Chebychev formula, Gauss Quadrature formula. Revision and Tests
April	Numerical solution of ordinary differential equations: Single step methods- Picard's method. Taylor's series method, Euler's method, Runge-Kutta methods. Multiple step methods, Predictor corrector method, Modified Euler's method, Milne-Simpson's method. Revision and Tests
May	University Exam

Signature of the Teacher

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Sc 6th Semester
Session : 2023-2024
Subject : Dynamics

Month	Topic
January	Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings. Revision and Tests
February	Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces. Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity. Revision and Tests
March	Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity. Revision and Tests
April	General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems. Revision and Tests
May	University Exam

Signature of the Teacher

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Com 3rd Semester
Session : 2023-2024
Subject : Quantitative Techniques for Business-I

Month	Topic
August	Quantitative Techniques: Meaning and types, application in business and management decision making and its limitations. Calculation of profit and loss on the basis of cost price, sales price and profit percentage. Revision and Tests
September	Compound Interest and Annuities: Different types of interest rate, types of annuities; concept and calculation of present values and amount of an annuity including the case of continuous compounding. Revision and Tests
October	Elementary idea of Permutations and Combinations. Set Theory. Theory of Probability - probability as a concept; Approaches to defining probability, addition, multiplication laws and Baye's theorem of probability and its applications. Revision and Tests
November	Probability Distribution: Probability distribution as a concept; Binomial, Poisson and Normal. Revision and Tests
December	University Exam

Signature of the Teacher

Lesson Plan

Name of the Assistant Professor : Dr. Sarita Banga
Class and Section : B.Com 4th Semester
Session : 2023-2024
Subject : Quantitative Techniques for
Business-II

Month	Topic
August	Linear Programming: Concept, application in business, graphic method of linear programming. Simplex method, Big M method. Revision and Tests
September	Transportation and Assignment problem: Assumptions, formulation and solution of transportation model, transshipment problems, definition of assignment model, Hungarian model for solution of assignment problems, travelling salesmen problem. Revision and Tests
October	Network Analysis Techniques: Concept, history, importance, CPM/PERT: concept, related terminologies, comparison, solving business problems, applications, limitations. Association of Attributes: Related terminologies. Revision and Tests
November	Types of association, methods of calculating association two, three attributes. Revision and Tests
December	University Exam

Signature of the Teacher