

BRS GOVERNMENT COLLEGE ,DUJANA

Lesson Plan For The Session 2023-24

Department of Mathematics

Paper & Class : Calculus (B-Sc- 1st Semester)

Name of the Assistant Professor: Gautam Ram

| Date/ Week/ Month | Chapter and Topic |
|--------------------------|--|
| 21-07-2023 to 22-07-2023 | Definition of the limit of a function- Basic properties of limits |
| 24-07-2023 to 29-07-2023 | Continuous functions and classification of discontinuities. Differentiability |
| 31-07-2023 to 05-08-2023 | Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions. |
| 07-08-2023 to 12-08-2023 | Discussion on problems in Section 1. |
| 14-08-2023 to 19-08-2023 | Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates |
| 21-08-2023 to 26-08-2023 | Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves- Newton's method. |
| 28-08-2023 to 02-09-2023 | Radius of curvature for pedal curves- Tangential polar equations. Centre of curvature. Circle of curvature. |
| 04-09-2023 to 09-09-2023 | Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points- |
| 11-09-2023 to 16-09-2023 | Cusps, nodes & conjugate points .Type of Cusps. |
| 18-09-2023 to 23-09-2023 | DIWALI BREAK |
| 25-09-2023 to 30-09-2023 | Discussion on problems in Section 2 |
| 03-10-2023 to 07-10-2023 | Tracing of curves in Cartesian, parametric and polar co-ordinates |
| 09-10-2023 to 14-10-2023 | Reduction formulae .Rectification, intrinsic equations of curve. |
| 16-10-2023 to 21-10-2023 | Discussion on problems in Section 3 |
| 23-10-2023 to 28-10-2023 | Quadrature (area)Sectorial area. Area bounded by closed curves. |
| 30-10-2023 to 04-11-2023 | Volumes and surfaces of solids of revolution- Theorems of Pappu's and Guilden. |
| 06-11-2023 to 09-11-2023 | Discussion on problems in Section 4 |
| 17-11-2023 to 24-11-2023 | Revision |

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BRS GOVERNMENT COLLEGE ,DUJANA

Lesson Plan for the session 2023-24

Department of Mathematics

Paper & Class : Advanced Calculus (B-Sc- 3rd Semester)

Name of the Assistant Professor: Gautam Ram

| Date/ Week/ Month | Chapter and Topic |
|--------------------------|--|
| 21-07-2023 to 22-07-2023 | Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chain rule of differentiability |
| 24-07-2023 to 29-07-2023 | -----DO----- |
| 31-07-2023 to 05-08-2023 | Mean value theorems; Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations. |
| 07-08-2023 to 12-08-2023 | Taylor's Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives, Indeterminate forms |
| 14-08-2023 to 19-08-2023 | Discussion on problems in Section 1 |
| 21-08-2023 to 26-08-2023 | Limit and continuity of real valued functions of two variables. |
| 28-08-2023 to 02-09-2023 | Partial differentiation. Total Differentials; Composite functions & implicit functions |
| 04-09-2023 to 09-09-2023 | Change of variables. Homogenous functions & Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. |
| 11-09-2023 to 16-09-2023 | Discussion on problems in Section 2 |
| 18-09-2023 to 23-09-2023 | DIWALI BREAK |
| 25-09-2023 to 30-09-2023 | Implicit function theorem. Maxima, Minima and saddle points of two variables. |
| 03-10-2023 to 07-10-2023 | Lagrange' method of multipliers. |
| 09-10-2023 to 14-10-2023 | Discussion on problems in Section 3 |
| 16-10-2023 to 21-10-2023 | Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. |
| 23-10-2023 to 28-10-2023 | Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involutives, evolutes, Bertrand Curves. |
| 30-10-2023 to 04-11-2023 | Surfaces: Tangent planes, one parameter family of surfaces, Envelopes. |
| 06-11-2023 to 09-11-2023 | Discussion on problems in Section 4 |
| 17-11-2023 to 24-11-2023 | Revision |

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Lesson Plan for the session 2023-24

Department of Mathematics

Paper & Class : Groups and Rings (B-Sc- Vth Semester)

Name of the Assistant Professor: Gautam Ram

| Date/ Week/ Month | Chapter and Topic |
|--------------------------|---|
| 21-07-2023 to 22-07-2023 | Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria |
| 24-07-2023 to 29-07-2023 | Generation of groups, cyclic groups, Cosets, Left and right cosets, Index of a sub-group |
| 31-07-2023 to 05-08-2023 | Coset decomposition, Lagrange's theorem and its consequences, Normal subgroups, Quotient groups |
| 07-08-2023 to 12-08-2023 | -----DO----- |
| 14-08-2023 to 19-08-2023 | Discussion on problems in Section 1 |
| 21-08-2023 to 26-08-2023 | Homomorphisms, isomorphisms, automorphisms and inner automorphisms of a group. |
| 28-08-2023 to 02-09-2023 | Automorphisms of cyclic groups, Permutations groups. Even and odd permutations |
| 04-09-2023 to 09-09-2023 | Alternating groups, Cayley's theorem, Center of a group and derived group of a group |
| 11-09-2023 to 16-09-2023 | Discussion on problems in Section 2 |
| 18-09-2023 to 23-09-2023 | DIWALI BREAK |
| 25-09-2023 to 30-09-2023 | Introduction to rings, subrings, integral domains and fields, Characteristics of a ring. |
| 03-10-2023 to 07-10-2023 | Ring homomorphisms, ideals (principal, prime and Maximal) and Quotient rings, Field of quotients of an integral domain. |
| 09-10-2023 to 14-10-2023 | Discussion on problems in Section 3 |
| 16-10-2023 to 21-10-2023 | Euclidean rings, Polynomial rings, Polynomials over the rational field |
| 23-10-2023 to 28-10-2023 | The Eisenstein's criterion, Polynomial rings over commutative rings. |
| 30-10-2023 to 04-11-2023 | Unique factorization domain, R unique factorization domain implies so is $R[X_1, X_2, \dots, X_n]$ |
| 06-11-2023 to 09-11-2023 | Discussion on problems in Section 4 |
| 17-11-2023 to 24-11-2023 | Revision |

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