

Diploma Syllabus
Course Name : Mathematics-II

Sl. No	Course Code	Subject Name	Hours per Week			Total	Total Credits
			L	T	P	Hrs	
1	EN2BS02	MATHEMATICS-II	3	1	0	4	4

Unit-I

Differential Calculus

Definition of limit. Limits of polynomial, rational, trigonometric, exponential and logarithmic functions. Definition and concept of differential coefficient, derivatives of sum, difference, product and quotient of functions. The derivative of polynomial and trigonometric functions. Differential coefficient of function of a function(Chain Rule), Differential coefficient of an implicit function.

Unit-II

Integral Calculus

Definition as an inverse process of differentiation, Standard Results. Resolution of an algebraic fraction into Partial fraction. Methods of Integration: by substitution, integration by parts, by partial fraction. Evaluation of simple integrals of the following types and problems based on them.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}$$

Concept and basic properties of definite integrals.

Unit-III

Differential Equations

Definition, order and degree of a Differential equation. Formation of a Differential equation whose general solution is given. Solution of a Differential equations of first order and first degree using method of separation of variables, solution of homogenous differential equations and reducible to homogenous form, solution of linear differential equations.

Unit-IV

Vector Algebra

Vector and scalar quantities, magnitude and direction, different types of vectors, addition and subtraction of vectors. Components of a vector. Multiplication of two vectors: Scalar product, Vector product. Applications (Work done).

Unit-V

Statistics and Probability

Statistics: Measures of Central tendency (Mean, Mode, Median), Measures of Dispersion (Mean deviation, Standard deviation, Variance) of ungrouped/grouped data.

Probability: Concept of Probability.

Text Books/References:

1. Mathematics XI & XII NCERT, New Delhi.
2. Mathematics XI & XII M. P. Board, Bhopal.
3. Polytechnic Mathematics H. K. Dass, CBS Publishers & Distributors.
4. Text Book on Differential Calculus, Gorakh Prasad & Chandrika Prasad, Pothishala Pvt. Limited, 1982.
5. Text Book on Integral Calculus, Gorakh Prasad & Chandrika Prasad, Pothishala Pvt. Limited, 1982.
6. Applied Mathematics, R. D. Sharma, Dhanpat Rai Publications, New Delhi.
7. Mathematics Class XII, R. D. Sharma, Dhanpat Rai Publications, New Delhi.
8. Applied Mathematics (I & II), K. S. Sumha, Bharat Bharati Prakashan, Meerut.

9. Elementary Engineering Mathematics, B. S. Grewal , Khanna Publication.
10. Mathematical Statistics - Ray and Sharma, Ram Prasad & Sons, Agra.
11. Calculus, Thomas and Finney, Pearson Education, New Delhi.
12. Calculus: A complete course, Robert Adams, Pearson Education, New Delhi.