



Course Content:

• Module 1:

Approximation of Numbers, significant figures, Rounding of Numbers, Types of Error, Error in series approximation, Error Propagation, and Total numerical errors.

• Module 2:

Solution of Algebraic and Transcendental Equation, Bisection method, Newton Raphson Method, Regula falsi Method, Secant method.

• Module 3:

Difference Operators, Shifting operators, Forward difference Operator, Backward Difference Operator, the relation between the Operators, and Central difference operators.

• Module 4:

Interpolation, Newton's Forward interpolation, Newton's difference Interpolation, Lagrange's interpolation, and Inverse Lagrange's Interpolation.

• Module 5:

Simultaneous linear equation, Gauss Elimination Method, Gauss Jordan's Method, Factorization Method, Jacobi Iterative Method, Gauss-Siedal Iteration method.

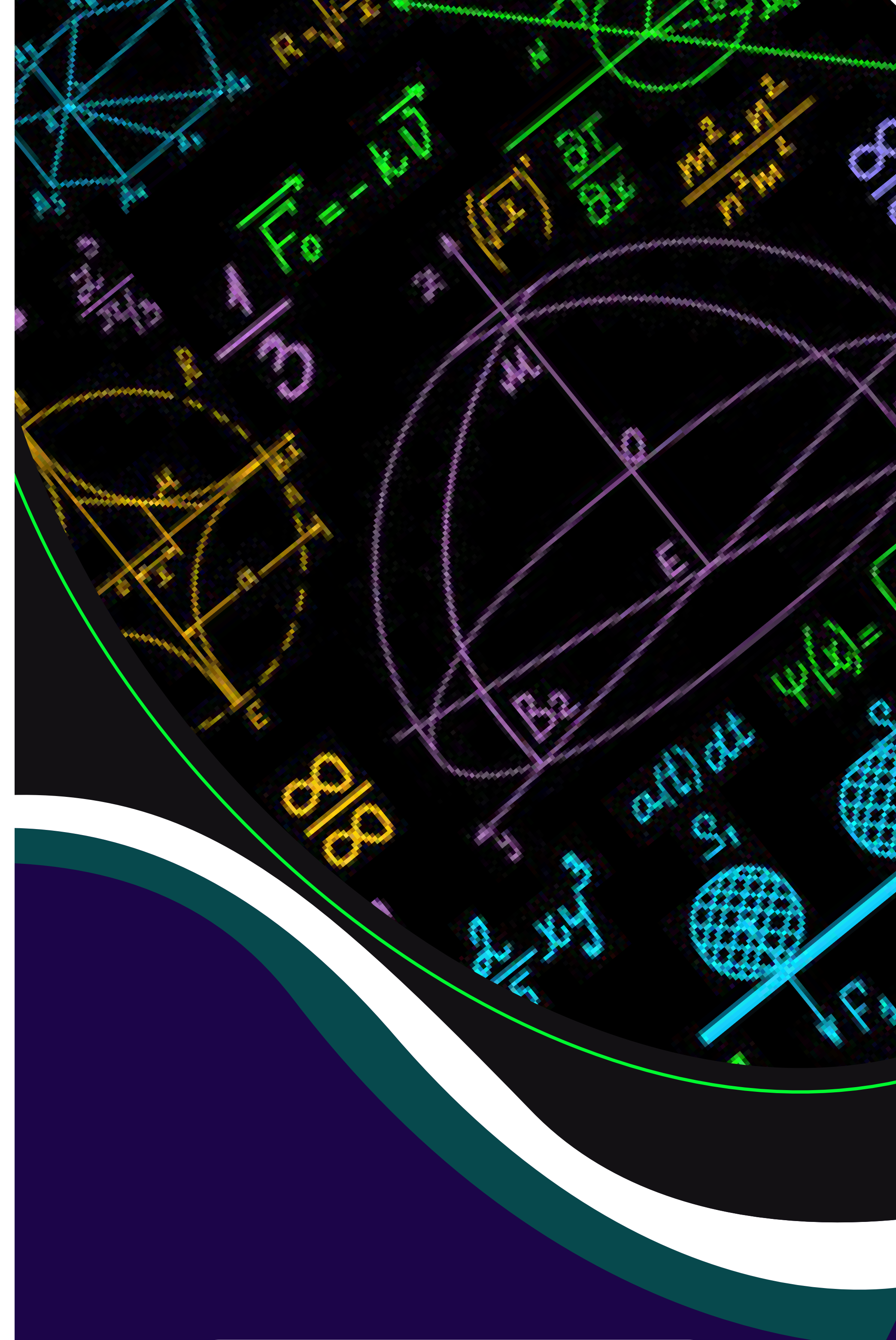
Course objective:

To impart the parametric fundamentals to create and manipulate geometric models using curves, surfaces, and solids.

1. Demonstrate the basic Concept of Significant Figures.
2. Apply basic concepts to Find Solutions to Algebraic and Transcendental Equation.
3. Ability to present the mathematical, statistical, and computational challenges of Central difference operators.
4. Apply the Use of Regula falsi Method.
5. Produce Technique solve the Problem Through Newton's difference Interpolation.
6. Produce Technique for Evaluation and improvement of Total numerical errors.
7. Understand and demonstrate the technique of Inverse Lagrange's Interpolation.
8. Understand about Gauss Elimination Method.
9. Become familiar with the analysis of the Jacobi Iterative Method.
10. Become familiar with the use of the Gauss-Siedal Iteration method.

Process of Enrollment and certification:

- Fill out the enrolment form and submit it to the course head by downloading it from the university's official website or using the Google form link. Following successful enrollment, participants will attend a 30-hour session in which 70% attendance is required. At the end of each module, The participant will be submitting an assignment at the end of the module. To be eligible for the certificate, the participant must complete at least three out of five assignments and score at least 70% on the evaluation paper. The participant will receive a certificate from ARKA JAIN University in Jharkhand after successfully completing the assignment and evaluation paper.



ARKA JAIN
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School of Engineering And IT
Department of Engineering
Short-Term Certificate Course On

“Application of Mathematics in Engineering and Science”

