

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 Jordon's Method, Factorization Method, Jacobi Iterative Method, Gauss-Siedal Iteration method.

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

- Figures.

- operators.

Course objective:

1. Demonstrate the basic Concept of Significant

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

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.



About the Course:

- Convener: Dr. Ashwini Kumar, Asst Dean, School of Engineering & IT
- Coordintaors: Prof.Sushil Hasa and Dr. Binod Kumar Choudhary
- Technical Co-ordinator: Mr. Suraj Kumar Mishra and Mr. Manish Kumar
- Course Developer: Prof. Sushil Hasa/Dr. Binod Kumar Choudhary/ Dr.Ashwini Kumar

COURSE **DURATION:**





30 Hours

• Course Location:

• Mode of learning:

• Who can Enroll:

On-campus and offline

Registration Link:

ARKA JAIN University, Jharkhand

All Engineering and IT students of

ARKA JAIN University, Jharkhand

10th March, 2023

First

Course outcome:

- image data.

Program specific outcome:

- scale

Registration fee: 100/-• Payment Information:

Google pay no:+91-9939974038 (Dr. Binod Kumar Choudhary)

https://forms.gle/dRCmcS2TepSDEyuv7



The students will be able to

1. Create a mathematical foundation that will help the learner to understand the concepts of Engineering and Science.

2. Describe the Different application of Mathematics.

3. Design and implement various Tools of Mathematics which supervised learning architectures for text &

4. Implement various Types of Mathematics which is use in models and architectures.

5. Apply various mathematical techniques to design efficient algorithms for real-world applications

1. To impart fundamental knowledge to students in the latest technological topics on hands-on Different Progressive methods used in Engineering on a larger

2. To create a congenial environment that promotes learning, and growth and imparts the ability to work with interdisciplinary groups in professional, industry, and research organizations.

3. To analyze different ways of solving given Numerical problems related to all branches of Engineering

4. To broaden and deepen their capabilities in analytical and experimental research methods, analysis of data, and drawing relevant conclusions for scholarly writing and presentation.

5. To provide guidance to students for their choices in research and professional career outlook and to encourage students to take up research.

Program outcome:

- Electrical Engineering and Engineering
- to all branches.
- technological issues.
- and the use of software tools.
- the practical application of their work.



1. Apply/develop solutions or do research in the areas of Design and simulation in Mechanical Engineering, Computer science

2. Have abilities and capabilities in developing and applying software design and development practices to develop software applications in emerging areas related

3. Review and document the knowledge developed by scholarly predecessors and critically assess the relevant

4. Formulate relevant research problems; conduct experimental and/or analytical study and analyze results with modern mathematical/scientific methods

5. Design and validate technological solutions to defined problems and communicate clearly and effectively for

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