Department of Mathematics

Khalisani Mahavidyalaya

Here's a concise list of important cross-cutting issues found in the **syllabus of Mathematics** under **CBCS** pattern:

1. Applications in Environmental Sustainability

- **Differential Equations** (Paper Code: MATH-CC-301): Modelling population dynamics and pollution levels.
- **Mathematical Modelling** (Paper Code: MATH-SEC-501): Simulating climate changes and resource optimization.

2. Relevance to Medical Science

- **Mathematical Statistics** (Paper Code: MATH-CC-402): Analysis of medical data and predictive modelling for diseases.
- **Probability and Distribution** (Paper Code: MATH-CC-304): Epidemic spread modelling and survival analysis.

3. Problem-Solving in Engineering and Technology

- **Linear Algebra** (Paper Code: MATH-CC-203): Structural analysis in engineering, including bridge designs.
- **Fourier Analysis** (Paper Code: MATH-DSE-602): Signal processing for communication systems.
- **Numerical Methods** (Paper Code: MATH-CC-302): Computational solutions for complex engineering problems.

4. Computational and Programming Skills

- **Mathematical Computing with C** (Paper Code: MATH-SEC-503): Algorithm development and implementation in C language.

- **Numerical Methods Lab** (Paper Code: MATH-CC-302L): Software-based solutions for mathematical problems.

5. Optimization and Decision-Making

- **Operations Research** (Paper Code: MATH-DSE-601): Linear programming problems (LPP), transportation, and inventory management.
- **Optimization Techniques** (Paper Code: MATH-CC-304): Applications in production planning and logistics.

6. Advanced Mathematical Tools

- **Graph Theory** (Paper Code: MATH-SEC-502): Network optimization, social network analysis, and scheduling algorithms.
- **Discrete Mathematics** (Paper Code: MATH-CC-303): Algorithms for connectivity and cryptographic applications.