



**KINGS**  
COLLEGE OF ENGINEERING  
AUTONOMOUS

Approved by AICTE, New Delhi  
Affiliated to Anna University, Chennai  
Recognized under 2(f) & 12B, UGC  
NAAC Accredited Institution

## **ISTE STAFF CHAPTER (TN 205)**

### **ACADEMIC YEAR 2024-25(EVEN SEMESTER)**

#### **Staff Seminar Report**

A one day seminar titled “**Mathematical Tools in Engineering**” was organized by **ISTE Staff Chapter [TN 205]** on **23.05.2025** from 3.00p.m. to 3.45p.m. to the faculty members of Kings College of Engineering (Autonomous) with an objective to offer a better understanding of Mathematical Tools in Engineering. The session was handled by the resource person

**Dr.S. Geetha**, Assistant Professor / Department of Science & Humanities (Mathematics).

Mathematics plays very important role in Engineering. Engineering is the discipline, art, and profession of applying scientific, mathematical, and technical knowledge to design, create, and maintain structures, machines, systems, and processes that benefit society. It is based on the application of Mathematics and Physics which empowers Engineering to create modern world solutions.

#### **Role of Mathematics in Engineering**

Engineering relies on various branches of Mathematics. Here is some important application of Mathematics in Engineering.

- Application of Geometry
- Application of Linear Algebra
- Application of Graphs
- Application of complex numbers
- Application of Differential Equations, etc.

#### **Application of Geometry**

Geometry is an integral part of computer graphics, used to create visually stunning images and animations. It involves defining shapes, objects, and characters, as well as applying transformations for movement and interaction. Through rendering techniques, geometry helps simulate realistic lighting, shadows, and reflections. It also plays a role in 3D modeling and the creation of special effects like explosions and water simulations.

#### **Application of Linear Algebra**

It's crucial for algorithms, graphics, data mining, and machine learning, helping in the processing and analysis of large data sets.

Linear algebra is used in electrical circuits, stress analysis, and mechanical systems design, enabling engineers to model and solve complex problems.

### **Application of Graphs**

In Computer science graphs are used to represent the flow of computation. Google maps uses graphs for building transportation systems, where intersection of two(or more) roads are considered to be a vertex and the road connecting two vertices is considered to be an edge, thus their navigation system is based on the algorithm to calculate the shortest path between two vertices. Graphs are used to represent the bond between molecules.

### **Application of extended complex numbers**

Used to represent rotations and orientations of objects in 3D space.

### **Application of Differential Equations**

Engineers calculate the rate of change of variables to design systems and services.

Totally 10 faculty members actively participated in this session and gained knowledge about the Mathematical Tools in Engineering. The seminar was arranged by **Mrs.T. Gnanajeya**, Coordinator / ISTE Chapter.



  
Coordinator / ISTE Chapter 28/5/25

  
28/5/2025  
PRINCIPAL