

NATIONAL LEVEL ONLINE WORKSHOP:

MAPLE for Mathematical & Physical Sciences

Date: 14 March 2026

Time: 6:30 PM – 8:30 PM (IST)

Mode: Online

Organized by

Association of All Computer Science Teachers (AACST)

In Collaboration with

Binary Semantics Limited, Gurugram

Participants

The workshop received an overwhelming response with **234 participants** from across India. The participants included **faculty members, research scholars, postgraduate students, and academic practitioners** interested in computational tools for scientific learning and research.

Participants represented **various academic disciplines** — **Physics, Mathematics, Computer Science, Chemistry, Electronics, Botany, and interdisciplinary domains.**

The workshop saw participation from **19 states and union territories**, including Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Dadra and Nagar Haveli, Delhi, Goa, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, and Uttar Pradesh.

Participants joined from **64 cities across India**, reflecting the wide academic outreach of the initiative.

This diverse participation clearly demonstrates the **growing national interest in computational tools for interdisciplinary scientific learning.**

Patron & Mentor

Dr. Abha Khandelwal

Retired Head, Department of Computer Science

Hislop College, Nagpur

Founder, Association of All Computer Science Teachers (AACST)

President

Dr. S. B. Kishor
President, AACST

Workshop Coordinator

Dr. Ojas Garg
National Coordinator – Maple & MapleLearn Program
AACST

Resource Person

Ms. Nithyashree KS
Mathematician and Maple Expert
Binary Semantics Limited, Gurugram

Chairperson

Prof. P. C. Deshmukh
ANRF Prime Minister Professor
Department of Physics
Central University of Kerala

Event Overview

The **National Level Online Workshop on “MAPLE for Mathematical & Physical Sciences”** was organized by the **Association of All Computer Science Teachers (AACST)** in collaboration with **Binary Semantics Limited, Gurugram** on **14 March 2026**.

The workshop aimed to introduce participants to the capabilities of **Maple**, a powerful **Computer Algebra System (CAS)** used for symbolic computation, numerical analysis, mathematical modelling, and scientific visualization.

The program focused on strengthening computational proficiency among students, teachers, and researchers in **Mathematics, Physics, and Chemistry**, enabling them to integrate theoretical concepts with computational execution and research-oriented applications.

Workshop Sessions

The technical session was conducted by **Ms. Nithyashree KS**, who demonstrated the concepts of Maple, capabilities of Maple and its applications **Mathematics, Physics and Chemistry disciplines.**

Before the beginning of each segment, **Dr. Ojas Garg** introduced the **problem statement** and explained the underlying scientific concepts using **animated visual explanations**, helping participants clearly understand the theoretical foundation before the computational implementation.

Following this conceptual introduction, **Ms. Nithyashree KS demonstrated how the same problems could be solved and visualized using Maple**, in 3 seconds, connecting theory with computational practice.

The session included demonstrations on:

- Computer Algebra Systems (CAS)
- Eigenvalues and Fourier Series
- Differential Equations using Maple
- Computational modelling of the Heat Equation
- Applications of Maple in Chemical Kinetics
- Symbolic computation and scientific visualization.

Advanced Maple Tools Demonstration

The final segment of the workshop included a brief introduction to **advanced tools available in the Maple 2026 version**. Participants were introduced to Maple's capabilities for **interactive visualization, advanced symbolic computation, and multidimensional modelling.**

The demonstration highlighted Maple's ability to generate **3-D graphical representations and higher-dimensional modelling concepts**, allowing users to analyse complex mathematical and physical systems more effectively.

This segment provided participants with insights into the **advanced analytical and visualization capabilities of Maple**, encouraging them to explore its applications in scientific computing and interdisciplinary research.

Key Highlights

- Participation from **234 learners representing 7 academic disciplines**
 - Representation from **19 states and union territories and 64 cities across India**
 - Demonstration of Maple applications across **Mathematics, Physics and Chemistry disciplines**
 - Conceptual introduction of problems using **animated visual explanations** by **Dr. Ojas Garg**
 - Hands-on computational demonstrations by **Ms. Nithyashree KS**
 - Complimentary **Maple software license key provided to participants**
 - **E-Certificates awarded to eligible participants**
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Question and Answer Session

The workshop concluded with an interactive **Question and Answer session**, during which participants engaged with the resource person to clarify concepts and discuss potential applications of Maple in teaching and research.

Chairperson's Remarks

The valedictory session was chaired by **Prof. P. C. Deshmukh, ANRF Prime Minister Professor, Central University of Kerala.**

In his remarks, he described the workshop as a **highly enriching academic session**, appreciating the clarity and practical demonstrations presented during the program. He particularly appreciated the efforts of the **resource person, Ms. Nithyashree KS**, for presenting the concepts of Maple in a clear and engaging manner.

Prof. Deshmukh emphasized the growing importance of **computational tools in modern scientific research and education**, highlighting how platforms like Maple enable students and researchers to visualize and analyse complex scientific problems effectively.

He also lauded the efforts of **Dr. Abha Khandelwal, Mentor and Convener of the program**, for conceptualizing and organizing such a meaningful academic initiative that brought together participants from multiple disciplines across the nation.

He particularly appreciated **her mission of promoting computational science beyond traditional classrooms and creating platforms where mathematics, physics, chemistry, and computing interact to strengthen scientific understanding.**

Referring to the national participation, he noted that reaching **participants across 64 cities of the country reflects a remarkable commitment to expanding the reach of computational education.**

Vote of Thanks

The **Vote of Thanks** was delivered by **Dr. Ojas Garg, National Coordinator – Maple & MapleLearn Program, AACST.**

He expressed gratitude to the **Chairperson, Prof. P. C. Deshmukh**, for his valuable presence and remarks. He also thanked the **resource person, Ms. Nithyashree KS, Devendra Sharma and Binary Semantics Limited, Gurugram**, for their collaboration and support.

Dr. Garg also acknowledged the efforts of **Dr. Abha Khandelwal, Mentor and Convener of the program**, whose vision and initiative made this national-level workshop possible. He further thanked all the participants for their enthusiastic participation.

Conclusion

The **National Level Online Workshop on “MAPLE for Mathematical & Physical Sciences”** proved to be an academically enriching program that successfully introduced participants to the computational capabilities of Maple.

The workshop demonstrated how computational tools can strengthen interdisciplinary scientific learning through modelling, visualization, and symbolic computation.

The participation of **234 learners from diverse disciplines and regions of the country** reflects the growing importance of computational approaches in modern scientific education and research.

**Report Submitted by
EDITORIAL TEAM, AACST.**

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NATIONAL LEVEL ONLINE WORKSHOP:
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First Order Reaction Kinetics
first order reaction rate depends nearly on the concentration of a single reactant.
General reaction: $A \rightarrow \text{Products}$
Rate law: $\text{rate} = -d[A]/dt = k[A]$
 k is the rate constant and determines reaction speed.
This equation is solved analytically using separation of variables.
Maple can symbolically solve this differential equation.

Binary Semantics®

Dr Abha Khandelwal Dr Ojas Garg Devendra Sharma

Dr Abha Khandelwal

Nithyashree KS

P C Deshmukh

Dr Ojas Garg

Dr Ojas Garg

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Reaction Kinetics

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First-order kinetic

REACTANTS

What is First-order kinetic?

First-order is a chemical reaction which the rate is directly proportional to the concentration of the reactants.

IN CERTAIN CONDITIONS, THE MORE REACTANTS AVAILABLE, THE FASTER THE REACTION RATE.

GRAPHING PSEUDO - FIRST ORDER REACTION

Gradient is not constant

X

1/2 X

X

0

time

t₁ t₂

Dr Abha Khandelwal Dr Ojas Garg P C Deshmukh

P C Deshmukh