DST- GUJCOST
sponsored
National Seminar on

Mathematical Modeling of Real World Problems

Organized by

Mathematics Section, ASH Department
Sarvajanik College of Engineering & Technology

(A Constituent Institute of Sarvajanik University)

Date & Day: March 25, 2022 (Friday)
Time: 09:15 AM – 04:15 PM
Platform: Online – Google Meet

OBJECTIVES

- To understand and discuss the Mathematical Models of the real world problems.
- To provide a better understanding and clarity about the importance of Application of Mathematics in every discipline of science, Engineering and technology by means of real World Problems.

RESOURCE PERSONS

- **Dr. Ajay K. Shukla** (Professor, SVNIT, Surat)
- **Dr. Santosh K. Upadhyay** (Professor, IIT-BHU, Varansi)
- **Dr. Jayesh M. Dhodiya** (Associate Professor, SVNIT, Surat)
- **Dr. Md. Sharifuddin Ansari** (Assistant Professor, PDEU, Gandhinagar)

PARTICIPANTS

99 registered of which 47 faculty members, research scholars and students (UG/PG) from science and engineering disciplines, have participated in the seminar. They were from various colleges and universities across Gujarat..

COORDINATORS

Dr. Rajesh M. Darji | Dr. Shama M. Mulla

SUMMARY

Mathematics section of Applied Science and Humanities Department of Sarvajanik College of Engineering and Technology organized DST-GUJCOST sponsored one day online national seminar entitled “Mathematical Modeling of Real World Problems” on March 25, 2022.
The seminar was aimed to guide the students and faculty members to excel the role of mathematics in engineering and technology by means of application in Real World Problems. The lectures of the seminar were conducted by eminent speakers from different disciplines of academia. The following table summarizes the various speaker’s sessions of the seminar.

Speaker’s Name & Session Title	Session Details
Dr. Ajay K. Shukla *The pRq function*	Dr. Ajay K. Shukla introduced the special hypergeometric function pRq (alpha, beta, z) and its analytical properties, differential properties and simple integrals. He told about the characteristics (the order and the type) of the function. He explained how this function is related to elementary functions and with other well-known higher transcendental and special functions. He discussed the applications of such special functions in an era of Mathematical physics, and applications in engineering sciences.
Dr. Santosh Kumar Upadhyay *Wavelet Transform and It’s Application*	Dr. Santosh Kumar Upadhyay explained how the wavelet theory was originated. He discussed various results related to wavelet transforms along with its properties. Finally he explained applications of wavelet transforms in real world problems especially in signal and image process.

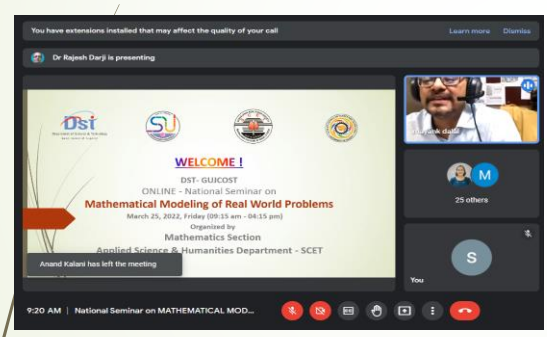
Dr. Jayesh Dhodiya
Uncertain and fuzzy numbers based Mathematical Modeling and their simulation

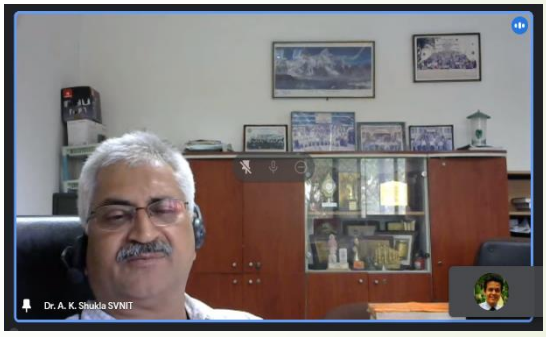
Dr. Jayesh Dhodiya introduced the discretization in fuzzy logic as compared to the traditional logic. He explained fuzzy numbers and how gradually this number came into picture from uncertain number to gray numbers and then to fuzzy numbers. Finally speaker formulated the mathematical model of some uncertain problems and derived the solution using fuzzy logic for possible solution.

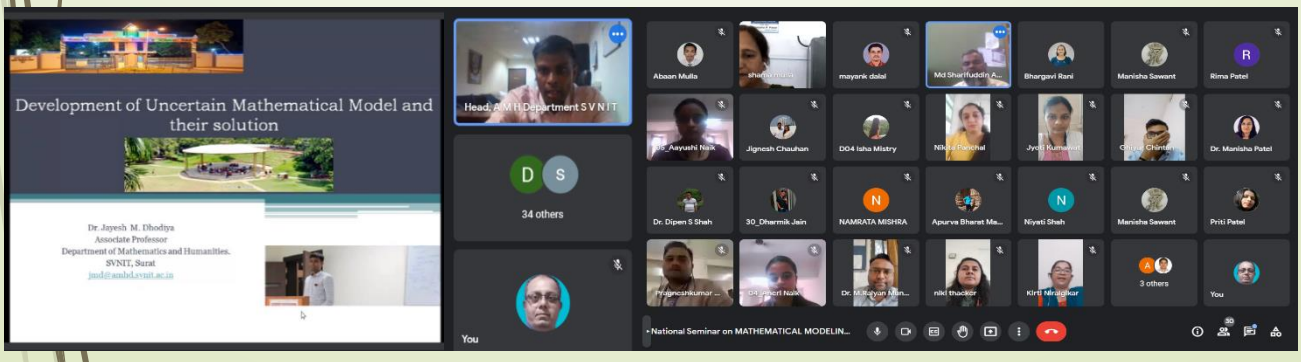
Dr. Md. Sharifuddin Ansari
Boundary layer flow along with microorganism

Dr Md. Sharifuddin Ansari explained the boundary layer flow of fluids containing micro-organisms over a vertical plate. The problem describes the mobility of micro-organisms and concentration of nanoparticles over a stretching surface under the momentum and thermal boundary layers. Numerical algorithm to obtain solution of system of partial differential equation known as PQLM (Paired Quasi Linearization Method) was used. In the end, the convergence and accuracy of the solution was verified with the actual available data.

We would like to extend our sincere gratitude to Sarvajanik Education Society and Sarvajanik College of Engineering and Technology for permitting us to submit seminar proposal to GUJCOST and subsequently providing necessary infrastructure for conducting the seminar after receiving seminar approval from GUJCOST. We are thankful to our honorable principal Dr. Hiren Patel and our HOD Dr. Mayank Dalal for their continuous guidance and support. We extend our earnest gratitude to all the eminent speakers who have accepted our invitation within a short notice of time and spared their valuable time. All the sessions were highly educative and with deep insights. Our sincere thanks to all our colleagues for their help in all the possible ways whenever required. Last but not the least, we are very thankful to all the participants for their kind presence during the seminar.







Thank you !