

## REPORT

### On

Short term course on “Mathematics: its Role and Application in Engineering and Technology, MRAET2014”

I have attended a short term course on “Mathematics: its Role and Application in Engineering and Technology, MRAET2014” organized by Department of Mathematics, NIT, Dugapur from 13/01/2014 to 17/01/2014. The course emphasized on the application of mathematics in different fields. Resource persons from different field of interest delivered their lectures. Out of which here I mention few of them.

Prof. A.Goswami, Department of Mathematics, Indian Institute of Technology Kharagpur delivered lecture on “Applications of Data Mining in production planning and inventory control”. This field deals with Non-trivial extraction of implicit, previously unknown and potentially useful and ultimately understandable patterns from large quantities of data in databases, also known as knowledge discovery.

Applications:

1. Banking: loan/credit card approval
2. Medicine: effectiveness of treatments by analysing patient disease history
3. Market Analysis: forecasting, customer retention, Improved underwriting,

Quality control, competitive analysis

4. Risk Analysis and Management: Use historical data to build models of

Fraudulent behaviour and use data mining to identify similar instances parameter changes.

“Black Hole: The Mysterious Object”, was the topic of Prof. Subenoy Chakraborty, Department of Mathematics, Jadavpur University, Kolkata. He described the mathematical model of black hole.

Professor D. C. Sanyal, Professor (Retired) of Mathematics, University of Kalyani delivered the speech on “Some Mathematical models on Genetics”.

Prof. Shamik Ghosh from Department of Mathematics, Jadavpur University discussed Graph theory in a very lucid way. He also illustrated few mathematical puzzle based on Graph theory. Out of which Ramsey problem, Konigsberg Bridge Problem, Hamiltonian Problem, Four Color Problem are worth mentioning.

Most interesting session was delivered by Prof. M. K. Sen on “Check digit in identification numbers” where he applied congruence to identify the ISBN number, Debit and Credit number.

Prof. T. K. Kumar, Director of NIT, Durgapur enriched us with his lecturer on “Oil & Gas reservoir modelling and applications.”

“On vibrations of some nonlinear differential systems” was the title of Prof. D. C. Sanyal, Professor (Retd.) of Mathematics, University of Kalyani. Vibrations are ubiquitous in all fields of fundamental and applied sciences. In fact, problems arising in physical, mechanical, chemical, biological etc. systems appear mathematically in the forms of differential equations-ordinary or partial- linear or nonlinear, autonomous or non-autonomous. The models involved in physical phenomena lead very often to nonlinear ordinary differential equations (ODEs) and solutions of these equations are of great importance for gaining insights into the real world.

Details explanation with mathematical prove of relativity theory was given by Prof. S. P. Mukherjee under the title “Some stray thoughts on reliability analysis”.

Prof. Pradip Niyogi from IIT Kharagpur delivered the speech on “Analysis of Line Gauss-Seidel scheme for solving Laplace equation and convergence acceleration”

### Photo Gallery



NIT Campus



Conference Room