

Certificate Course on Quantitative Modeling and Analysis

A free-for-all Add-on Certificate Course on "Quantitative Modeling and Analysis" for the students will commence in the session 2023-2024 under the guidance of Dr. Mala Bhattacharyya, Associate Professor, Department of Mathematics, Gokhale Memorial Girls' College, Kolkata. The course will be conducted by the faculty of the Department of Mathematics along with an external resource person.

Guidelines

1. This is a free add-on course for developing an idea of quantitative /mathematical modeling which is the need of the day for solving different scientific as well as management problems .
2. Classes will be conducted both in offline and online mode and class schedule will be provided to the students well in advance before the commencement of the course.
3. Study material shall be provided by the faculty as and when necessary.
4. The duration of the course shall be 30 hours and the minimum attendance of participants shall be 90 %.
5. The students shall be evaluated/assessed through assignments and examination.
6. A certificate of completion shall be awarded to successful participants provided they attend at least 90% of the classes and clear the assessment process.

Benefits of the Course

1. The students will learn and analyze the basic concepts of Quantitative modeling which has wide applications in various fields.
2. As mathematical models can be used to predict future outcomes and possibilities based on current data, after completion of this course their knowledge will be valuable in fields such as finance, economics, statistics, weather forecasting, epidemiology and other research areas.
3. The students will be able to formulate the real-life situations and get the solutions of problems with mathematical explanations to a believable situation.
4. Since Computer Simulation is a natural continuation of Quantitative (Mathematical) Modeling, the enrolled students after completion of this course will have a good career prospect.

Course Structure:

# Topic	Faculty	Duration
MODULE-I	MB/PP	9 hrs
<ul style="list-style-type: none">• An Overview of Quantitative Modeling• Some special types of differential equations which occur in real life situations and analysis of their solutions• Initial value problems and their solutions using special techniques		
MODULE-II	PP	9 hrs
<ul style="list-style-type: none">• Creating Random Numerical Values• Monte Carlo simulation modeling• Queuing models• An idea of optimization modeling techniques		
MODULE-III	PP/MB	9 hrs
<ul style="list-style-type: none">• Linear programming models/problems and their solutions with analysis• Conducting sensitivity analysis in linear programming models		
COURSE ASSESSMENT	–	3 hrs