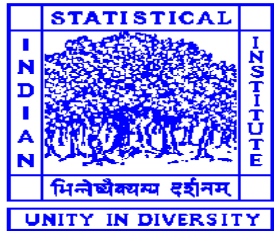


MONTE CARLO SIMULATION *of* PRODUCTION LINES



15 April 2025

SQC & OR Unit

Indian Statistical Institute, Bangalore



Organized by:

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Online Seminar



Title: **Effortless Monte Carlo Simulation for Production Lines**

Speaker: **Dr. Prasad Velaga**

OPTISOL LLC, Texas, USA

Date: 15 April 2025

Time: 7:00 PM to 8:15 PM IST

Abstract:

Many manufacturing units are basically production lines on which each product goes through a common sequence of work stations. However, KPIs of a production line such as throughput, production lead time, work in process, etc. are usually impacted by several factors at work stations. The factors at a work station include 1) the average cycle time, 2) statistical variation in cycle time, 3) the allowed WIP limit, 4) number of parallel resources, 5) resource speeds, 6) machine failure times, 7) machine repair times, 8) resource calendars, 9) changeover times and 10) rework/rejections.

The above-mentioned factors also have a major impact on the dynamic nature of work flow on a production line. Due to the influence of these factors, the workstations on a line do not perform independent of one another, that is, workstations have interactive effects on system KPIs. Similarly, the factors at a workstation may also have interactive effects on system KPIs.

Online Seminar



Title: **Effortless Monte Carlo Simulation for Production Lines**

Speaker: **Dr. Prasad Velaga**

OPTISOL LLC, Texas, USA

Date: 15 April 2025

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Abstract:

Control and management of a production line will be more efficient when production manager measures the effects of these factors on system KPIs and the dynamic nature of work flow on the line. Without a right mechanism, it is not easy to assess how a change in a factor at a workstation affects system KPIs and what interactive effects the factors have on the KPIs. Qualitative knowledge of the effects of these factors on KPIs will not help in precise, managerial decision making

Monte Carlo (MC) simulation is a practically effective method for understanding and analyzing the dynamic nature of a production line and also for accurately assessing the effects of the factors on the performance of workstations and the entire line. It facilitates fast, reliable and extensive what-if analysis of work flow on a production line.

MC simulation of a production line is now simplified to the extent that it can be treated as a handy tool for simulating, analyzing and improving the line. It can identify truly effective improvement opportunities on the line.

Online Seminar



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Speaker: **Dr. Prasad Velaga**

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About Speaker:

Dr. Prasad Velaga did PhD in Operations Research (OR) at the Indian Statistical Institute (ISI), Delhi Centre 40 years ago. He later worked as OR faculty at ISI and a few universities in USA. During his tenure at ISI, Dr. Velaga was also working as an SQC & OR consultant to manufacturing industries. During 1999-2004, he worked on a few research projects on optimization, simulation and scheduling sponsored by NASA and Department of Defense, simulated production in large steel mills in USA for capacity planning purpose and developed scheduling solutions for shipbuilding industry. In 2004, he founded a company Optisol LLC in Texas and started helping complex production units in controlling, managing and improving productivity by efficient production scheduling.

Dr. Velaga has a strong passion for practical and theoretical aspects of optimization, simulation and scheduling. He is currently promoting simple, easy, effortless and scientific simulation of production lines in manufacturing.

Online Seminar

Registration Fee

There is no registration fee for this program. The admission is free

Seats are limited. The participants will be selected on the first-come-first-serve basis

Registration Form link

<https://forms.gle/L1dhzmDvMWFDpZyg8>

Important Dates

Last date for submission of registration forms: 14 April 2025

Seminar Date: 15 April 2025

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