



Maharshi Dayanand  
University Rohtak



Ministry of Education  
Government of India

GIAN Course  
on

# Managerial Efficiency and Productivity Measurement: Theory and Practice

January 8th-12th, 2025



*Organised by*

**Institute of Management Studies and Research  
MAHARSHI DAYANAND UNIVERSITY, ROHTAK**

(A State University Established under Haryana Act No. XXV of 1975)

'A+' University Accredited by NAAC

NIRF-2024: 35<sup>th</sup> Rank under State Public University Category

Course Coordinator  
**Prof. Ramphul Ohlan**  
Featured in Stanford University World's  
Top 2% Scientists List 2023, 2024

## Course Overview

Globalization has intensified competition for business firms in developing countries. To sustain growth and profitability, firms in these regions should adapt and redesign their strategies to achieve business excellence. The conventional neoclassical paradigm assumes that all firms operate rationally and efficiently. However, this assumption does not align with reality. In practice, firms—regardless of the industry—often fail to operate at their full potential. This course challenges the neoclassical assumption of full efficiency and introduces concepts, models, and tools necessary to analyze and quantify inefficiency levels and productivity at a given point in time, as well as track their changes over time for individual firms.

## Rationale

Inefficiency leads to reduced output, increased costs, and lower profits. Understanding the degree of inefficiency and its impact on these critical business metrics—output, costs, revenue, and profit—is essential. This course employs an econometric method known as the stochastic frontier approach to identify and estimate the magnitude and potential sources of inefficiency using both cross-sectional and panel data. The focus extends to both technical and allocative inefficiency.

## Scope and Significance

The course explores the influence of inefficiency on productivity growth and profitability. Models are developed to estimate the potential loss of productivity and profit when firms fail to perform at their full potential. The course also addresses issues related to technological differences, drawing distinctions between technology gaps and efficiency levels.

## Learning Objectives

The course deals with both conceptual and methodological issues concerning efficiency and productivity measurement. In particular, participants will understand the following:

- Sources of efficiency from the perspective of technical feasibility, allocation of scarce resource among competing ends, and the scale of firm operations
- The input and output aspects of technical and allocative efficiency
- Applying these approaches to identify the drivers of efficiency gains and productivity growth
- Using these methods for benchmarking, identifying best practices, and selecting role models to enhance performance and achieve efficiency gains

## Course Outcomes

Participants will learn the theories related to efficiency and productivity measurement and will develop proficiency in using software to initiate their own research in these areas, specifically employing the Stochastic Frontier Approach (SFA).

## Course Main Contents

- Production function, its properties, and input and output oriented inefficiency
- Estimating Firm-Specific Inefficiency, Basics of Stata
- Total Factor Productivity and profitability decomposition
- Panel SF models; Hands-on: Stata, DEAP, TFPI, DPIN, FRONTIER, Database: Prowess

## Suggested Readings

Kumbhakar, S. C., & Horncastle, A. P. (2015). *A practitioner's guide to stochastic frontier analysis using Stata*. Cambridge University Press, USA. <https://doi.org/10.1017/CBO9781139342070>

Ohlan, R. (2019). Energy efficiency in India's iron and steel industry: A firm-level data envelopment analysis. *Strategic Planning for Energy and the Environment*, 38(3), 27-36. <https://doi.org/10.1080/10485236.2019.12043346>

Mitra, A., Varoudakis, A., & Veganzones-Varoudakis, M. A. (2002). Productivity and technical efficiency in Indian states' manufacturing: the role of infrastructure. *Economic Development and Cultural Change*, 50(2), 395-426.

<https://www.journals.uchicago.edu/doi/10.1086/321916>

## TEACHING FACULTY



### **Patron** \* Prof. Rajbir Singh, Vice-Chancellor, MDU, Rohtak

Prof. Rajbir Singh is known for his contributions to academia, research, and academic leadership. He has been actively involved in enhancing the academic standards of the university and promoting research excellence. Prof. Singh emphasizes innovation, quality education, and research excellence, fostering an environment conducive to capacity building and the development of faculty and students alike.



### **Foreign Faculty** \* Prof. Subal C. Kumbhakar, Binghamton University, USA

Dr. Subal C. Kumbhakar is a distinguished professor of economics at Binghamton University. His work primarily focuses on productivity analysis, efficiency measurement and the application of econometric techniques to firm-level data. His research has covered a wide range of industries, providing insights into the dynamics of production processes and the role of innovation in enhancing competitiveness.



### **National Faculty** \* Prof. Arup Mitra, South Asian University, New Delhi

Prof. Arup Mitra is a prominent Indian economist with a distinguished academic and research career. He has worked extensively in areas such as urban development, labor economics, poverty, income inequality, and productivity growth. He has also contributed to policy-making through his work with governmental and international organizations.



### **National Faculty** \* Prof. T. R. Kundu, Kurukshetra University, Kurukshetra

Emeritus Prof. T. R. Kundu has made significant contributions in economic modeling and planning. His comparison of iterative planning procedures and analysis of horizontal information flows in multilevel planning systems highlight his focus on optimizing resource allocation and decision-making structures. His work on comparative productivity of public versus private enterprises is significant for policy modeling, providing tools to better predict economic outcomes based on input-output relationships.



### **Course Coordinator** \* Prof. Ramphul Ohlan, IMSAR, MDU

Prof. Ramphul Ohlan is an esteemed scholar in the field of economics who has garnered international recognition, featuring in the world's top two percent of scientists in 2023 and 2024, a prestigious list compiled by Stanford University, USA. His research spans multiple critical areas, including the implications of globalization on agribusiness, food security, corporate social responsibility, public health, energy efficiency, and the intersection of economic growth with environmental concerns such as carbon emissions.

## Who Can Attend?

The course is designed for undergraduate and postgraduate students, PhD candidates, postdoctoral researchers, and faculty members, with background in economics, business management, commerce, engineering, and allied disciplines.

## IMPORTANT DETAILS

**Course Schedule:** January 8th-12th, 2025; **Last date for course registration:** December 15th, 2024; Confirmation of successful registration by email: December 17th, 2024; **Last date for fee submission** (Only for selected participants): December 22nd, 2024; **Confirmation of successful payment & other details by email:** December 24th, 2024, **Mode:** Offline, **Venue:** Ch. Ranbir Singh Institute of Social and Economic Change, MDU, Rohtak; **Course Completion Certificate:** Yes on passing examination and successful completion of course.

## REGISTRATION PROCESS

- Step 1:** Fill out the online Google form by using the below link to complete the course registration process. \*Applicants registering early will be given preference in the shortlisting process.
- Step 2:** Selected applicants will receive a confirmation mail of their course registration from the University with a fee payment detail.
- Step 3:** Selected applicants will pay the fees as per their eligibility criteria by using a fee payment detail.
- Step 4:** Applicants will receive a confirmation mail of their fee payment and other details from the University.

## REGISTRATION LINK

Online registration is mandatory.

[https://docs.google.com/forms/d/1Y6sT4XwX95C\\_enrign88r\\_lyxNu8e6OU\\_m5XXyB7TTo/edit](https://docs.google.com/forms/d/1Y6sT4XwX95C_enrign88r_lyxNu8e6OU_m5XXyB7TTo/edit)

## REGISTRATION FEE

As per GIAN norms. Students (Undergraduate, Postgraduate/PhD/Post Doctoral): Rs. 1000; Faculty: Rs. 2000; Corporate: Rs. 2500. Payment of registration fee should be made only after receiving the registration confirmation mail from MDU Rohtak. Fee is non-refundable and non-adjustable.

## FEE PAYMENT DETAILS

Individual payment through online mode only to the following account details: Name of the Beneficiary: Director IMSAR; Name of Bank: State Bank of India; Branch Code: 004734; IFSC Code SBIN0004734; Beneficiary Account No. will be provided only to selected applicants.

## ACCOMMODATION

Participants can be provided accommodation in university transit hostel and faculty house inside the campus on a payment basis as the registration fee does not include boarding and lodging.

## FOR PARTICIPANTS QUERIES & CONTACT

Dr. Naresh Kumar, IMSAR, MDU, Rohtak, Haryana-124001  
Mobile: **+91 - 9813024227** Email: **naresh.imsar@mdurohtak.ac.in**



## TEAM IMSAR

### Programme Director

Prof. Satyawan Baroda, Director IMSAR

### Organizing Secretary

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### Advisory Committee

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## MEDIA COVERAGE

### Global academic programme sanctioned

**TRIBUNE NEWS SERVICE**

ROHTAK, OCTOBER 23

The Union Ministry of Education has sanctioned a Global Initiative on Academic Network (GIAN) programme for which a proposal was submitted by Prof. Ramphul Ohlan at Institute of Management Studies and Research (IMSAR) in Maharshi Dayanand University (MDU), Rohtak.

"A grant of Rs 6,64,000 has been sanctioned for the programme. Under this, a five-day workshop will be organised -- on -- "Managerial Efficiency and Productivity Measurement: Theory and Practice", at MDU by foreign faculty -- Prof Subal Kumbhakar from Department of Economics, State University of New York," said Ohlan.

He added that the participants would learn to improve efficiency and productivity of business organisations.

"Prof BS Murty, Director, IIT-Hyderabad, will act as the national coordinator, while Prof Arup Mitra from South Asian University, New Delhi, will be a national faculty expert for this course," he added.

### Global Initiative for Academic Networking Programme on Managerial Efficiency and Productivity Measurement

A five-day Global Initiative for Academic Networking Programme on 'Managerial Efficiency and Productivity Measurement: Theory and Practice' is being organised by the Institute of Management Studies and Research at Maharshi Dayanand University, Rohtak from January 08-12, 2025. The event is sponsored by the Ministry of Education, Government of India. The undergraduate and postgraduate students, Ph.D. candidates, postdoctoral researchers, and faculty members with backgrounds in economics, business management, commerce, engineering, and allied disciplines may participate in the Event.

The contemporary relevance of this course emerges from the fact that globalization has intensified competition for business firms in developing countries. To sustain growth and profitability, firms in these regions should adapt and redesign their strategies to achieve business excellence. The conventional neoclassical paradigm assumes that all firms operate rationally and efficiently. However, this assumption does not align with reality. In practice, firms—regardless of the industry—often fail to operate at their full potential. Inefficiency leads to reduced output, increased costs, and lower profits. Understanding the degree of inefficiency and its impact on these critical business metrics—output, costs, revenue, and profit—is essential. This course aligns with the United Nations Sustainable Development Goal 8.4, which targets enhanced global resource efficiency in consumption and production by 2030. The course also addresses issues related to technological differences, drawing distinctions between technology gaps and efficiency levels. Participants will acquire tools to improve business efficiency and productivity, sharpening their business analytics skills. The Subthemes of the Event are:

- Production Functions, their Properties, and Input/Output-oriented Inefficiencies.
- Estimating Firm-specific Inefficiency and Fundamentals of State.
- Total Factor Productivity (TFP) and Profitability Decomposition.
- Panel Stochastic Frontier Models, with Practical Sessions using State, DEA, TFP, DPIN, FRONTIER, and Databases like Prowess.

For further details, contact Course Coordinator, Prof. Ramphul Ohlan, Institute of Management Studies and Research, Maharshi Dayanand University, Rohtak, Haryana-124001, Mobile No: 09812804349, E-mail: [ramphul.ramphul@gmail.com](mailto:ramphul.ramphul@gmail.com). For updates, log on to: <https://gian.ith.ac.in/>