



Dr. R.R.K. SHARMA

Professor, HAG Scale (Since Aug. 2012)
Department of Industrial and Management Engineering
IIT KANPUR

Prof. R.R.K. Sharma has published 975 papers (357 peer reviewed; 14 under review and 604 working papers) in international/national journals and seven research monographs). He has developed over 8 software products. Till date he has guided 60 M.Tech and 20 Ph.D theses at IIT Kanpur. Currently he is HAG scale full professor at IIT Kanpur. He has been Sanjay Mittal Chair Professor at IIT KANPUR (during 15.09.2015 to 14.09.2018).

Prof. R.R.K. Sharma has won several national and international awards: He is the recipient of the Dr. Manubhai M. Shah Memorial Award 2013 (instituted by the Indian Commerce Association) & it carried a cash prize of Rs. 1 Lakh, trophy and a certificate of excellence. Prof. R.R.K. Sharma, recognized as "Distinguished Scientist", by Venus International Foundation Research Awards 2015 (VIFRA 2015) at CENTRE FOR ADVANCED RESEARCH AND DESIGN; Chennai: Dec 19; 2015. In 2016: Prof. R.R.K. Sharma, "Distinguished Educator Award", selected by IEOM (Industrial Engineering and Operations Management) Society, USA; given Kuala Lumpur on MAR 09, 2016. In 2018 career 360 recognized him as one of the top ten knowledge producer in India.

EDITOR: Prof. R.R.K. Sharma

MANAGEMENT SCIENCE

VOLUME 3

WORKING PAPER SERIES
**LECTURE NOTES IN
MANAGEMENT
SCIENCE**

EDITOR
Prof. R.R.K. Sharma

VOLUME 3



Department of Industrial and Management Engg.
IIT Kanpur, India



EXCEL INDIA PUBLISHERS

91 A, Ground Floor, Pratik Market, Munirka, New Delhi-110067
Call: +91-11-2671 1755/ 2755/ 3755/ 5755 • Fax: 011-2671 6755
Cell: +9899127755/ 9999609755/ 9910757755
e-mail: publishing@groupexcelindia.com • Web: www.groupexcelindia.com



₹1000 ■ US\$45