

PRACTICING BUSINESS AND DATA ANALYTICS
Term – 2: ECTS 10

(July 16 – August 13, 2014 including exam)



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COURSE TITLE

Practicing Business and Data Analytics

LECTURER

Narain Gupta

INFORMATION ABOUT THE LECTURER

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Prof. (Dr.) Narain Gupta is a distinguished faculty of Operations Management area at Management Development Institute, Gurgaon since August 2012. He received his Doctoral Degree FPM (Fellow Programme in Management) from Department of Production and Quantitative Methods of Indian Institute of Management, Ahmedabad, India in year March 2008. He obtained Master of Technology from Department of Industrial Engineering and Management of Indian Institute of Technology, Kharagpur, India in year 2003. He completed engineering from Department of Mining Engineering of CTAE, Udaipur, India.

He has been a Gold Medalist throughout his education. He accredited multiple meritorious awards for the First Rank in Engineering in the State of Rajasthan. He has a US Copyright for an Optimization based Decision Support System. His company Global eProcure obtained a US Patent on his name for one algorithm developed by him for Auto-Classification of Spend-Data Visibility. He has five years of rich corporate experience of people management, driving multiple initiatives towards studying and improving process efficiency. He started his corporate career as a senior consultant from a procurement consulting company headquartered in USA. He worked on multiple international consulting assignments for Kellogg's, Starwood Hotels, etc in the area of Strategic Sourcing and Spend Analytics. Later, he joined **A P Moller Maersk**, the largest logistics and shipping company in the world, headquartered at Denmark. He joined the procurement offshore centre of Maersk Procurement as a Senior Business Analyst. Basis his innovative ideas on

managing the offshore centre and procurement services he gained three promotions in a duration of 2 years.

During his stint at Maersk, he led multiple initiatives to improve the existing processes to enhance customer satisfaction. He guided an employee on a GREEN BELT project to accomplish significant reduction in turnaround time to stakeholders, and improving the customer satisfaction score. He was heading six different teams with 20 analysts in Procurement Analytics including Market Research, Spend Management, Presentations, Computer Systems, Contracts, and Data Analytics.

He has travelled to multiple countries including USA, Denmark, China, UAE, Singapore, etc. for teaching, training, consulting, and conference presentations. He has taught at Indian Institute of Management, Ahmedabad; SP Jain, Dubai; IIMM, Pune; and MDI, Gurgaon. He has taught courses on Operations Research and Quantitative Methods, Operations Management, Six Sigma Quality Control, etc. He teaches Business Statistics, Decision Sciences, and Services Operations Management at MDI, Gurgaon.

He has conducted training programmes for IOCL, and DRDO organizations on general management. He has been imparting training sessions to different organizations including IOCL, DRDO, BEL, etc. The training offered by him includes Competitive Benchmarking, Problem Solving Tools and Techniques, Supply Chain Management, Process Optimization, Operations Management and Inventory Control.

He has published in national and international journals, and presented his research in international conferences. His research expertise is Strategic Integrated Supply Chain Planning, Decision Support System, Mathematical Modeling, Process Optimization, Procurement Analytics, Strategic Sourcing, etc. His extended research interests are Revenue Optimization, Project Management, Services Operations Management, Etc.

TIME SCHEDULE AND COURSE OUTLINE

Fill in time of teaching, the subject of each day, references to the readings and if there are any assignments

Date	Subject	References	Assignments
Week 1			
Wednesday 16 th July: 9-12 + 13-13.45	Overview of the Course: <ul style="list-style-type: none"> • Introduction to Business Analytics • One Ungrouped data (Descriptive Statistics numerical on the board) • One grouped data (descriptive statistics on the board) • Descriptive Statistics in Excel 	<ul style="list-style-type: none"> • Ch 1-3 from Levin and Rubin • Ch 1-3 from ASW (Stats) • Ch 1-3 from KAN Black • (45 minutes practice) 	Numerical applications from statistical book and distributed notes
Thursday: 9-13	Data Patterns and Statistical Analysis <ul style="list-style-type: none"> • Normal Distribution, Uniform Distribution, Poisson Distribution • (Numerical problems of the distribution) • CLT and example • Inferencial Statistics (CI of mean, proportion, variance) sample size • Distributions in excel, solving problems using excel 	<ul style="list-style-type: none"> • Ch 4-6 from Levin and Rubin • Ch 4-6 from ASW • Ch 4-6 from KAN Black • (45 minutes practice) 	Numerical applications from statistical book and distributed notes
Friday: 9-13	Quality Tools: <ul style="list-style-type: none"> • Total Quality Management • Pareto Analysis • Bottleneck Analysis • Six Sigma • Lean Manufacturing 	<ul style="list-style-type: none"> • Intro to VBA • 45 minutes excel practice 	HBR/Ivey Shouldice Hospital Case

	<ul style="list-style-type: none"> • Process Analysis • Services Expansion 		
Monday: 9-13	Optimization Module <ul style="list-style-type: none"> • Introduction to Optimization • Graphical Method of Solving the Problem • Solving problems using Excel Solver 	<ul style="list-style-type: none"> • Ch 1-3, ASW (Management Science, Textbook) • (45 minutes excel practice) 	Numerical applications from textbook and distributed notes
Tuesday: 9-13	LP applications (Media planning, portfolio management, etc)	<ul style="list-style-type: none"> • Ch 4, ASW (Management Science Textbook) • (45 minutes excel practice) 	Numerical applications from statistical book and distributed notes
Week 2			
Wednesday 23 rd July: 9-13	LP Larger applications Revenue management, finance, etc. Excel practice www.ampl.com	<ul style="list-style-type: none"> • Ch 5-7, ASW (Textbook) • (45 minutes practice) 	HBR/Ivey Designing optimal capacity Planning Case, solving using solver Oil Blending UAE case
Thursday: 9-13	Inventory Control <ul style="list-style-type: none"> • News Vendor Problem • Butler Inventory Simulation using Excel • Revenue Management, EMSR, Seat Allocation 	Ch 12-13 Metters (45 minutes practice)	Small Case: to be distributed in the class
Friday: 9-13	Waiting Line and Extend Simulation	Ch 14 – Metters Ch 11 – ASW (Management Science) Extend Software Download from Web	HBR/Ivey Manzana Case

Monday: 9-13	Capacity Planning and Scheduling	Chapter from Chase-Jacob (To be distributed) Excel Working	HBR/Ivey Long Wang Sha Tan Ku Case
Tuesday: 9-13	Procurement Analytics <ul style="list-style-type: none"> • Spend management exercise, taxonomies, UNSPSC, eOTD, eClass • Market Research, and Research databases • Supplier Analysis • Supplier listing • RFX process and analysis • eSourcing, Auctions 	Notes to be distributed during the class Excel Practice	Exercises to be distributed in the class
Week 3			
Wednesday 30 th July: 9-13		Project Preparation	
Thursday: 9-13	TCO/TVO concept, Demand forecasting methods	Ch 20, Ken Black Cases on car modeling, truck leasing (To be distributed in the class) Data table feature, 45 minutes excel working	HBR/Ivey Tong Yang Cement
Friday: 9-13	Multi Criteria Decision Making <ul style="list-style-type: none"> • Scoring Method • Facility location numerical methods • Regression method 	Ch 16 – Metters Facility location chapter	Small case/problems to be distributed in the class
Monday: 9-13	Project Management <ul style="list-style-type: none"> • CPM Pert • Activity crashing • Casino profitability case 	Ch 9 – ASW (Management Science) Introduction to MS project	Small cases on CPM
Tuesday: 9-13		Project Presentation	
Week 4 Exam Preparation			

MANAGEMENT CASES

Product Number	Product Title	Author(s)
692015-PDF-ENG Harvard	Manzana Insurance: Fruitvale Branch (Abridged)	Steven C. Wheelwright
683068-PDF-ENG Harvard	Shouldice Hospital Limited	James Heskett
673057-PDF-ENG Harvard	Benihana of Tokyo	W. Earl Sasser Jr., John R. Klug
908D03-PDF-ENG Richard Ivey	Designing Optimal Capacity Planning Strategies	Owen Hall, Charles McPeak
GS14B-PDF-ENG Stanford (Harvard)	Tong Yang Cement (B): Logistics and Incentives	Seungjin Whang, Hau Lee, Mark Leslie, Glen Schmidt
909E08 Richard Ivey	Long Wang Sha Tan Ku (Dragon King Shorts Company)	Anna Galica, Vincent Fung, Lothair Ling, Pik-Kei Osburga Chan

TEXTBOOKS (mandatory)

ASW (Management Science:

- *An Introduction to Management Science: Quantitative Approaches to Decision Making* (Thirteenth Edition) by D.R. Anderson, D.J. Sweeney & T.A. Williams, South-Western (CENGAGE Learning), 13th edition
- *Operations Management for Competitive Advantage* by Richard B Chase, F Robert Jacobs, Nicholas J Aquilano, 14th edition

REFERENCE BOOKS (optional)

- *Successful Service Operations Management* by Metters, King-Metters, Pullman, and Walton, Cengage Learning Publication, 2e. (**Metters**)
- *Introduction to Operations Research* (Seventh Edition) by Frederick S. Hillier and Gerald J. Lieberman, Tata McGraw Hill, New Delhi, 2002.
- *Operations Research: An Introduction* (Seventh Edition) by Hamdy A. Taha, Prentice Hall of India Private Ltd., New Delhi, 1998.

- *Service Management, Operations, Strategy, Information Technology* by James A Fitzsimmons, and Mona J Fitzsimmons, *Tata McGraw Hill Education Private Limited*, 5e
- *Operations & Supply Management* by Richard B Chase, Ravi Shankar, F Robert Jacobs, Nicholas J Aquilano, 12e
- *Statistics for Management* by Levin and Rubin