भारतीय
प्रौद्योगिकी
संस्थान
काशी हिन्दू विश्वविद्यालय

IIT

INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

# Information Brochure
(2020-2021)

## M.Tech. Programme
*in*
# Industrial Management

# About Us:

The aim of the Industrial Management program is to produce graduates who are ready to contribute to the success of companies through effective problem solving while designing, developing, implementing and improving integrated systems that include people, materials, information, equipment and environment. Our students are specifically skilled to apply knowledge of mathematics, science, and engineering, as well as to analyse and interpret data. To embrace innovation through intellectual diversity and creative problem solving; and continue to develop holistically as a learner to become leaders of tomorrow.

**Prof. Kripa Shanker** (Ph. D Cornell University)
FNAE, FIE(I),FITEE(I),LMIIIE,MORSI,MORSA,SMIIE
Former professor, Industrial and Management Engineering, IIT kanpur
Visiting faculty, Department of Mecahnical Engineering,
IIT BHU VARANSI 221005

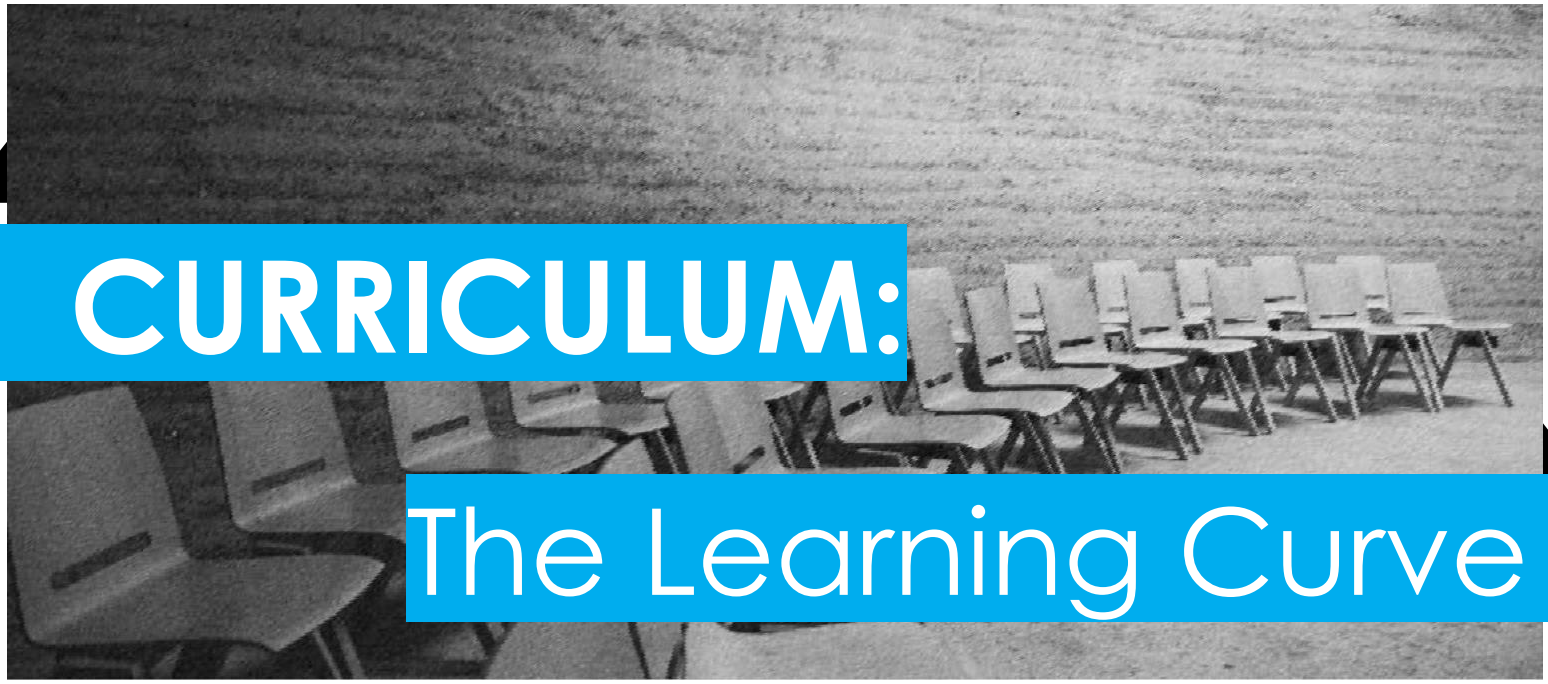
**Prof. S. K. Sharma** (Ph. D IIT Kharagpur)
AMIIE, LMSSI
Emeritus Professor, , Department of Mecahnical Engineering,
**Areas of Interest:**
**Quality engineering, system dynamics, operations manegment, forecasting and time series analysis.**

**Dr. Anil Kumar Agrawal** (Ph.D. IIT Kanpur)
LSSI, FISPE, FIE
Professor
**Areas of Interest:**
Quality Control, Six Sigma, Optimization, Industrial Engineering, Operation Management, Supply Chain Management

**Dr. Prabhash Bhardwaj** ( Ph.D. IIT BHU)
IEOM, ISPE, AMIE, MES
Professor
**Areas of Interest:**
Desgn of Production Systems, Operations Management, Supply Chain Management

**Dr. Cherian Samuel** ( Ph. D IIT Kharagpur)
AMIIE,AMIOM,AMMAE
Associate Professor
**Areas of Interest:**
Supply chain management, Production & Operations Management, System Dynamics

**Dr. Ajinkya N. Tanksale** ( Ph. D IIT Kharagpur)
AMIIE, LMISTE
Assistant Professor
**Areas of Interest:**
Operations Research, Supply Chain Management, Operations Management



# CURRICULUM:

## The Learning Curve

The main objective of industrial management branch is to educate young engineers & to conduct research in the wider field of organization and management of Production Systems. Our Industrial management branch is mainly active in following disciplines:

1. Quantitative Methods for Decision Making
2. Operations Management
3. Simulation for Decision making
4. Management Information Systems
5. Facility Planning : Layout and Location
6. Forecasting & Time series analysis
7. Design of Production Systems
8. Financial Engineering
9. Total Quality Management
10. Supply Chain Management
11. Multi Criteria Decision Analysis

Without **data** you're just another person with an **opinion**

**W. Edward Deming**

# Lab Facilities: Being Practical

1. **Optimization & Simulation Practical:**

   Problems such as:

   - Optimal location of ambulances/ fire brigades for maximum coverage of demand using linear/non-linear programs.
   - Aggregate planning for minimizing cost while meeting demand such as how many workers to hire/lay-off given their respective costs along with inventory costs.
   - Simulation of various real life scenarios such as complex banking system, hospital cardio ward & cafés for reducing average waiting time of customers/patients.

2. **Productivity & Quality Engineering practical:**

   - Here tools like RStudio, MiniTab & Excel were used to plot quality control charts of production process.
   - Analysis of Variance (ANOVA) was used for various Hypothesis Testing.

**SOFTWARES:**

- Gurobi optimizer (using Python interface)
- RStudio
- Machine Learning & Data Analytics
- ARENA Discrete event simulation
- LINGO optimizer
- MiniTab
- Advanced Excel
- Coding with Python language

"**Quality** is never an accident.
It is always the **result** of **intelligent effort**."

**-John Ruskin**

# M.Tech Thesis:

- Estimation of realistic policies of complex systems dynamics models using model control theory and eigen values analysis.
- Neural Network and deep learning algorithms in predicting stock prices.
- Risk management of portfolio and capital asset pricing model.
- Big data analytics
- A mathematical model to maximize volume flexibility in FMS.
- Parametric multi objective optimization of weld quality parameters of MIG welded MS plate(Grade: IS 2062) : A comparative analysis using gray relational and weighted principal component coupled Taguchi method.
- An integrated approach to facility relocation problem: A case study.
- A strategic model for omni channel retail supply chain network design.
- Integrating unsupervised and supervised machine learning for automated diagnosis of tuberculosis "
- Decomposition heuristic and simulation framework for integrated inventory and cash replenishment problem of automated teller machine
- A bi-objective generalized covering multi-traveling salesman problem
- "A comparative study for Cell Formation Problem"
- "Comparative study of forecasting methods for time series analysis"

"**Information** is the oil of the 21st century and **analytics** is the combustion engine."

-Peter Sondergaard

# Projects:

- Simulation of queuing system in Sir Sunderlal hospital's Cardio ward to reduce the avg. no of patients waiting in each queue.
- Simulation of CCD in IIT (BHU) Campus to reduce average waiting time at Coffee Counter.
- Analysing impact of adding another server on average waiting time of post office (BHU branch)
- To study about Jet airways case study and Insolvency Bankruptcy Code 19
- Forecasting of new cases of corona virus cases in India and different countries of world using time series analysis
- Database Design of India's Busiest Airports using PostgreSQL
- MIS for PPE Management for effective control of COVID-19
- Programming for Facility location using P- median algorithm in Python interface.
- Programming of Meta-heuristic(Genetic algorithm) for solving Fixed- charge facility location problem.
- A Case Study on Tourist Place Selection Using AHP Technique
- Deciding Finance Minister of India with the help of Analytic Network Process (ANP)
- Prioritizing Lean Supply Chain management initiatives in healthcare service operations using fuzzy AHP approach
- Finding the most suitable player for filling a vacant spot in a team using MAUT technique

"Let Our Advance Worrying Become Advance Thinking And Planning."

~Winston Churchill

# Departmental Activity(2019-20)

- Short tern course on "Green Belt: A Six Sigma Training Program" [29th sept 2019 to 3rd oct 2019]
- AICTE Sponsored QIP Short Term Course on Operations Research: Principles and Applications [30th Dec 2019 to 3rd Jan 2020]

# Achievements(2019-20)

- Silver Medalist in inter tech meet 8.0 2019 at IIT Roorkee for Bosch's Route Optimization Algorithm

# Message from Prof. Incharge:

It gives me immense pleasure to extend you a most cordial invitation to participate in the Campus Recruitment Programme of the Indian Institute of Technology (BHU), Varanasi. With an increasing thrust being placed on Institute-Industry Interaction, it is my sincere belief that your esteemed organization and IIT (BHU) Varanasi will stand to gain immensely from this symbiotic relationship.

Our Institute holds the pride of place being pioneer in the field of engineering and technical education in this country and has a glorious heritage. We have been continuously ranked amongst the elite by all peers and stakeholders. Our constant pursuit of excellence has made our institute a focal point in technical education for students and faculty members alike. Admissions to the institute take place through the reputed Joint Entrance Examination (JEE) and Graduate Aptitude Test in Engineering (GATE).

At this institute, we take utmost care to groom our students according to the needs of the industry. We seek to open frontiers of knowledge and reveal new horizons of change to broaden mindset and to create positive attitude in our students. Our students receive industrial exposure by their frequent industrial visits. Besides, our undergraduate students undergo an eight-week training during summer vacation in reputed industries/institutions/organizations (in India as well as abroad) as part of their academic requirements.

We would be most delighted to host you for campus recruitment and beyond. I am looking forward to a mutually beneficial relationship,

Professor **Anil Kumar Agrawal**
Training & Placement Officer, IIT (BHU) Varanasi

# Past Recruiters:

RMAE
Affine
Data ▸ Insights ▸ Transformation
INQUIZITY
intel
OPTYM
LIVE EFFICIENTLY
BOSCH
citi
JINDAL STEEL & POWER
TATA MOTORS
TATA STEEL
Infosys
ZS
ZS Associates
TATA
TATA CONSULTANCY SERVICES

# Placement Team:

**Dr. Anil Kumar Agrawal**

Professor In-charge
Training & Placement cell
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**Sri A.K. Verma**

Support Office Staff
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## Training & Placement Representative:

**Deepak Balasaheb Misal** (Machine Design, M. Tech.)

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