

Lectures/ Tutorials	Date	Topics
Lecture-1	Saturday, September 1, 2018	Fundamentals of the TOC. The problems of production structure planning at industrial enterprises. The concept of resource limitations ("bottlenecks"). Optimal priority of materials and products defining. Discussion of the results obtained by using traditional and new indicators and indexes.
Tutorial-1		Settling of specific current issuers of production planning raised in Lecture № 1.
Lecture-2	Sunday, September 2, 2018	The five-step process of continuous company functioning improvement in accordance with the Theory of Constraints. The notion and typology of constraints and their role in the production system. The formation of the optimal production program on the basis of the TOC. The indicators and indexes characterizing the mission of the enterprise and the purpose of production.
Lecture-3		Theory of Constraints with Jobs shop Scheduling.
Lecture-4	Monday, September 3, 2018	Technology of day-to-day production planning in accordance with DBR method. The analysis of random factors influences on the production process (a business play). Logistic foundation and functioning of the Theory of Constraints. The model of the dynamic buffer. Simulation of production structures on the basis of VAT-analysis. Checkpoints in the enterprise, depending on the type of its structure.
Tutorial-2		Creating of various Current Reality Trees and Evaporating Clouds and provide concrete examples (based on lecture № 4).
Lecture-5	Tuesday, September 4, 2018	New approaches to the analysis of problems and decision-making at industrial enterprises. The logistic and conceptual framework and structure of the thinking processes in the TOC. Methods of identification and analysis of major complicated problems (the Current Reality Tree). The method of analysis of possible conflicts and contradictions (Evaporating Cloud).
Tutorial-3		Consideration of various Reality Trees and providing Illustrative examples. Typical examples of "the offers which cannot be refused" (from the "mafia offer").
Tutorial-4		Interactive business play on production planning. The possible solutions of the arising major problems. Correct formulation of possible problems with the use of random factors.
Lecture-6	Wednesday, September 5, 2018	The method of future possible states defining and describing (Future Reality Tree). The technique of "underwater problems" identification (Prerequisite tree). The methodology of the correct decisions implementation in planning (Transition Tree).
Tutorial-5		Creating of various Reality Trees and providing and discussing concrete examples (based on lectures № 4 and № 5).
Lecture-7	Thursday, September 6, 2018	Possible variants of production issues solution for different organizations and companies. Typology of "the offers which cannot be rejected" (from the "mafia offer")
Lecture-8		The use of TOC to control the inventory level management and Case Study to discuss the Constraint Scheduling
Lecture-9	Friday, September 7, 2018	Various possible ways of applications of the Theory of Constraints for industrial enterprises and companies.
Lecture-10		The best possible anti-crisis solution of current production problems: sharing the ideas of the TOC. Ways of possible global and local tasks carrying out.
Examination	Saturday, September 8, 2018	Final Conclude the GIAN course and closing

#### Who can attend?

1. Students pursuing B.Tech./M.Tech./MS/M.Sc./Ph.D. degrees in any discipline or members of Faculty of any department from academic and technical institutions.
2. Researchers in Sciences, Engineering, and Business Analytics disciplines who need to process complex and large data sets.
3. Executives working with manufacturing, service or any other organization, including research laboratories.

#### Important Dates:

Last Date of Online Registration: August 10, 2018

Extended Date of Online Registration: Monday, August 27, 2018

Course Dates: September 1-8, 2018

#### Registration Steps:

1. Register online at: <http://www.gian.iitkgp.ac.in/GREGN/index>
2. Fill Google Form: [https://docs.google.com/forms/d/e/1FAIpQLSeHq7SMtLZm-es0yTd6rcMIGcnPcLjRC\\_71JE0t-Wr1StnF3A/viewform?c=0&w=1](https://docs.google.com/forms/d/e/1FAIpQLSeHq7SMtLZm-es0yTd6rcMIGcnPcLjRC_71JE0t-Wr1StnF3A/viewform?c=0&w=1)
3. The registration fee can be paid through a Demand Draft drawn in favour of "PROJECT ACCOUNT PDPM IIITDM JABALPUR" payable at JABALPUR OR Through NEFT/RTGS (A/c Name : PROJECT ACCOUNT PDPM IIITDM JABALPUR, A/c No. : 50210022387, Allahabad Bank, IFS Code : ALLA0212433, Branch Mehgawan, IIITDM, Jabalpur).
4. Please email transaction details and registration copy (from GIAN) to Prof. Puneet Tandon, email: [toc.gian2018@gmail.com](mailto:toc.gian2018@gmail.com)

#### Registration Fee:

Industry/ Research Organizations:	INR 10,000
Academic Institutions (Faculty):	INR 6,000
Research Scholars:	INR 4,000
Students:	INR 3,000
Participants from abroad:	US \$250

The registration fee includes instructional materials, tutorials and assignments, computer and Internet access, food and accommodation in Institute hostels. However, if accommodation is not required then INR 1,000 would be refunded back. In case, accommodation is required in Institute's Guest House (VH), the same maybe arranged on the payment basis.

#### Contact :

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## Global Initiative of Academic Networks (GIAN)

A course on

### Production Logistics: Theoretical and Practical Approach to the Theory of Constraints

September 1-8, 2018

at

Mechanical Engineering Discipline  
PDPM Indian Institute of Information Technology,  
Design and Manufacturing, Jabalpur  
MP, India. 482005

#### Coordinators



**Prof. Puneet Tandon**

Professor  
Mechanical Engineering & Design  
IIITDM Jabalpur



**Dr. Saurabh Pratap**

Assistant Professor  
Mechanical Engineering  
IIITDM Jabalpur

## About GIAN

Govt. of India approved a new program titled Global Initiative of Academic Networks (GIAN) in Higher Education aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence.

Under the GIAN program lectures by internationally and nationally renowned experts are being arranged to garner the best international experience into our systems of education, enable interaction of students and faculty with the best academic and industry experts from all over the world and share their experiences and expertise to motivate people to work on Indian problems.

## About IIITDM

PDPM IIITDM Jabalpur was established in 2005 with focus on education and research in IT enabled Design and Manufacturing. Since its inception, PDPM IIITDM Jabalpur has been playing a vital role in producing quality human resources to contribute in India's mission of inclusive and sustainable growth. The Institute offers undergraduate, post graduate and PhD programmes in Computer Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering and Design, along with PhD programmes in Mathematics and Physics. Under IIIT act, the Institute has been declared an Institute of National Importance.

## The Course Instructor:



Prof. Alexander Pesin is a full Professor at Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia. At present, he is also the Director of Magnitogorsk Scientific, Data and Engineering Center LLC and the Director of ChermetInformSystems LLC, enterprises established under the auspices of Nosov Magnitogorsk State Technical University. He is an expert of Moscow Institute of Logistics and Supply Chain Management as well as Russian Science Foundation. His primary research interests include Development of Theory and Technology of Cold and Hot Rolling, Combined and Hybrid Processes, Asymmetric Rolling, Logistics and Theory of Constraints, the Application of Scientific Knowledge for Practical Purposes, especially in industry. The works of his students and postgraduate students in the field of combined and hybrid processes, logistics and theory of constraints are recognized at national and international level. Prof. Pesin has published more than 350 scientific works, including 12 monographs and study guides, received 110 copyright certificates and patents of invention. He has been the editor of various journals, and was awarded a gold medal and Rospatent Diploma of the 1<sup>st</sup> Degree for the best invention at VI Moscow International Exhibition of Innovations and Investments.

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## Course Overview

Goldratt's Theory of Constraints (TOC) is a philosophy developed for production management. Any company is considered to be an organization that generates profit. One would always appreciate to make a quick and handsome profit, but unfortunately some constraints limit it. This course is aimed at revealing such constraints ("bottlenecks") at an enterprise. It will allow solving serious and pressing problems, and as a result leads to substantial increase in profit. In recent years, the theory of constraints has become one of the most popular and effective methodologies of company management. It is of great help if there is a high proportion of orders, handed over in excess of the terms and a large inventory of raw materials and components at frequent lack of specific positions. The TOC proved to be very effective when there is low volume of sales, when the production plans are constantly not executed and there is significant amount of unfinished production.

The lectures of the course will be delivered by Prof. Alexander Pesin, a Professor of Nosov Magnitogorsk State Technical University (Russian Federation) who was one of the first in Russia, who started to implement the approaches and methods of the TOC into practice both at Universities and in companies. He is the author of 6 books and the courses of lectures, in which he shares the experience of TOC applications for industrial and, in particular, the metallurgical enterprises. In the area of metal forming, a number of research dissertations were written and successfully defended under his supervision. His lecturing and consulting is complemented by laboratory practice and hands-on exercises and tasks that are carried out by the staff and students of the host university.