Global Initiative of Academic Network (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

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 a 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.

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 can 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 course of lectures will be delivered by Prof. Alexander Pesin, Professor of Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia who was one of the first 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 courses of lectures in which he shares the experience of TOC application 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.

The Course Instructor:
Prof. Alexander Pesin is a full Professor of Metallurgy of Mechanical Engineering and Materials Processing Institute 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 ChernmetalinformSystems 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 and Russian Science Foundation. His primary research interests include Development of the 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, got 110 copyright certificates and patents of invention. He has been editor of various journals, and was awarded a gold medal and Rospatent Diploma of the 1st Degree for the best invention at VI Moscow International Exhibition of Innovations and Investments.

Prof. Alexander Pesin, D. Sc.
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Prof. Puneet Tandon is a joint Professor of Mechanical Engineering and Design at IIITDM Jabalpur. His primary research interests include Innovative Product Design, Geometric Modeling, Computational Support to Product Design Process, Additive Manufacturing and Hybrid Manufacturing. He received his Masters and Doctoral degrees from Indian Institute of Technology Kanpur, India. He is Principal Investigator of many national and international projects. He has also taken up multiple consultancy assignments and has two patents to his name. He has published more than 200 papers in International peer refereed journals and Conferences. He has been editor / guest editor of various journals. Prof. Tandon research group (deLOGIC Lab) has been continuously awarded in IMTEX 2016, 2017 and 2018. He has organized a lot of conferences and workshops; and has been a part of various Conferences Programme Committees and Technical Committees. He has chaired various sessions in international and national conferences of repute. He also participates actively in international academic organizations.

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Dr. Saurabh Pratap is an Assistant Professor in the Disciple of Mechanical Engineering at PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur. He is working in the research domain of Logistics and Supply Chain, Mathematical Modeling, Physical Intranet, Smart Manufacturing, Optimization. He graduated in Mechanical Engineering from Institute of Engineering and Technology, U.P . India, and received his Masters from National Institute of Technology, Durgapur, India and Doctoral degree in Industrial and Systems Engineering from Indian Institute of Technology Kharagpur, India.

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Who can attend?
1. Researchers pursuing BTech/MTech/MS/MSc/Ph.D. degrees in any discipline or members of Faculty of any department from reputed academic and technical institutions.
2. Researchers in Sciences, Engineering, and Business Analytics disciplines who need to process complex and large datasets.
3. Executives working with manufacturing, service or any other organization, including research laboratories.

Important Dates:
Last Date of Online Registration: August 10, 2018
Course Dates: September 1-8, 2018

Registration Steps:
1. Register online at: http://www.gian.iitkgp.ac.in/GREGN/index
2. 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 to:
3. Google Form: https://docs.google.com/forms/d/e/1FAlpQLSeHq75MttLZm-esOytD6rcMGcnPCLjRC_71IE0t-Wr15StnF3A/viewform?c=0&w=1
4. Please email transaction details and registration copy (from GIAN) to Prof. Puneet Tandon, Email: toc.gian2018@gmail.com

Registration Fee:
Industry/ Research Organizations: INR 10000
Academic Institutions (Faculty): INR 6000
Research scholars: INR 4000
Students: INR 3000
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 1000 would be refunded back. In case, accommodation is required in Institute’s Guest House (VH), the same maybe arranged on the payment basis.
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<thead>
<tr>
<th>Lectures/Tutorials</th>
<th>Day</th>
<th>Date</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Lecture-1 (AP)</td>
<td>2 Hours</td>
<td>Saturday, September 1, 2018</td>
<td>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. Settling of specific current issuers of production planning raised in Lecture No1.</td>
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<tr>
<td>Tutorial-1 (AP)</td>
<td>2 Hours</td>
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<tr>
<td>Lecture-2 (AP)</td>
<td>2 Hours</td>
<td>Sunday, September 2, 2018</td>
<td>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. Theory of Constraints with Jobs Shop Scheduling.</td>
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<tr>
<td>Lecture-3 (SP)</td>
<td>2 Hours</td>
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<td>Lecture-4 (AP)</td>
<td>3 Hours</td>
<td>Monday, September 3, 2018</td>
<td>Technology of day-to-day production planning in accordance with DDBR 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. Checkpoint in the enterprise, depending on the type of its structure. Creating of various Current Reality Trees and Evaporating Clouds and provide concrete examples [based on lecture No4].</td>
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<tr>
<td>Tutorial-2 (AP)</td>
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<td>Lecture-5 (AP)</td>
<td>2 Hours</td>
<td>Tuesday, September 4, 2018</td>
<td>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]. Consideration of various Reality Trees and providing illustrative examples. Typical examples of &quot;the offers which cannot be refused&quot; [from the &quot;mafia offer&quot;].</td>
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<tr>
<td>Tutorial-3 (AP)</td>
<td>2 Hours</td>
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<td>Tutorial-4 (PT)</td>
<td>2 Hours</td>
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<td>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.</td>
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<td>Lecture-6 (AP)</td>
<td>2 Hours</td>
<td>Wednesday, September 5, 2018</td>
<td>The method of future possible states defining and describing [Future Reality Tree]. The technique of &quot;underwater problems&quot; identification [Prerequisite tree]. The methodology of the correct decisions implementation in planning [Transition Tree].</td>
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<td>Tutorial-5 (AP)</td>
<td>2 Hours</td>
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<td>Lecture-7 (AP)</td>
<td>2 Hours</td>
<td>Thursday, September 6, 2018</td>
<td>Possible variants of production issues solution for different organizations and companies. Typology of &quot;the offers which cannot be rejected&quot; [from the &quot;mafia offer&quot;] Possible variants of production issues solution for different organizations and companies. Typology of &quot;the offers which cannot be rejected&quot; [from the &quot;mafia offer&quot;]</td>
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<td>Lecture-8 (SP)</td>
<td>2 Hours</td>
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<td>The use of TOC to control the inventory level management and Case study to discuss the Constraint Scheduling</td>
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<td>Lecture-9 (AP)</td>
<td>2 hours</td>
<td>Friday, September 7, 2018</td>
<td>Various possible ways of applications of the Theory of Constraint for industrial enterprises and companies.</td>
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<td>Lecture-10 (AP)</td>
<td>2 hours</td>
<td>Saturday, September 8, 2018</td>
<td>The best possible antilcoholic solution of current production problems: sharing the ideas of the TOC. Ways of possible global and local tasks carrying out.</td>
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<td>Examination</td>
<td>2 hours</td>
<td>Saturday, September 8, 2018</td>
<td>Final Conclude the GIAN course and closing</td>
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