Advanced Optimization Techniques

About Zaragoza Logistics Center (ZLC)

Zaragoza Logistics Center (ZLC) is a research institute established by the Government of Aragon in Spain in partnership with the Massachusetts Institute of Technology (MIT) and the University of Zaragoza (UZ). ZLC mission is to create an international center of excellence for research and education in logistics and SCM that actively engages with industry and the public sector to develop and disseminate knowledge.

A core purpose of ZLC is to integrate supply chain management into business. The research program is aligned to ZLC's mission of focusing on enhancing economic growth and competitiveness through innovation. ZLC serves as an exclusive model for closer cooperation between industry, public administration and academia in funding research and using the knowledge transfer accumulated to reap commercial rewards efficiently.

About MIT Zaragoza Master of Engineering in Logistics and Supply Chain Management (ZLOG)

The MIT Zaragoza Master of Engineering in Logistics and Supply Chain Management (ZLOG) offers the unique combination of a worldclass supply chain degree taught in a truly global setting. Created in 2004 in collaboration with the leading university in the field, the Massachusetts Institute of Technology (MIT), this program prepares students to make an impact on a wide range of industries worldwide. This course is being offered as part of the ZLOG program.

Course Description

Many decision problems in logistics can be modelled as optimization problems. In manufacturing systems, for example, decisions on the acquisition, utilization and allocation of production resources must be made in the most efficient and effective way. This course covers advanced optimization techniques for problems arising in logistics, manufacturing, transportation, and many other fields. The course provides intense coverage of modelling and optimization problem solving.

Optimization methodologies include linear programming, integer programming, and constraint programming. The ultimate goals of this course are: to improve the capacity of modelling complex optimization problems in such a way that they can be solved using standard software packages; to provide an understanding of principal optimization problem solving procedures and to develop specialized solution procedures for non-standard problems. Furthermore, students learn the best way of solving Sudokus.

Dr. Asvin Goel

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Asvin Goel is Associate Professor of International Logistics at Jacobs University and Adjunct Professor of SCM at the Zaragoza Logistics Center. He holds academic degrees from the Faculty of Mathematics at the University of Göttingen (Dipl.-Math.), from the Faculty of Mathematics and Computer Science at the University of Leipzig (Dr. rer. nat.), and from the Faculty of Law, Economics, and Business at the University of Halle-Wittenberg (Dr. rer. pol. habil.).

He has several years of working experience as an independent consultant and software developer for the logistics industry. From 2006 to 2008 Prof. Goel was Visiting Associate Research Professor within the MIT-Zaragoza International Logistics Program and served as principle investigator of the research project "In-Transit Visibility" which was jointly conducted by DHL Exel Supply Chain, Deutsche Post World Net, the MIT Center for Transportation and Logistics, and the Zaragoza Logistics Center. In 2009 he was invited as Visiting Researcher to the National ICT Australia (NICTA) in Sydney and in 2010 he was Visiting Researcher at the Centre Interuniversitaire de Recherche sur les Réseaux d'Entreprise, la Logistique et le Transport (CIRRELT) in Montréal.

In his research Prof. Goel is mainly interested in developing quantitative and model-based approaches for optimising logistics systems. He is author of the book "Fleet Telematics" and published articles in leading journals such as Transportation Science, Journal of Scheduling, Computers & Operations Research, and European Journal of Operational Research. In the Handelsblatt BWL Ranking 2012 (a ranking based on the publication output of all German-speaking researchers in business studies) he was listed among the 250 researchers with the highest scoring lifetime research achievement (rank 16 in the category researchers aged below 40 and rank 34 in the category research achievement within the last 5 years). Prof. Goel is frequent reviewer for prestigious international journals and serves as review committee member for funding organisations such as the Netherlands Organisation for Scientific Research.

SCHEDULE

■ MONDAY MARCH 16

SESSION 1 | 09.15 - 10.45

SESSION 2 | 11.00 - 12.30

■ TUESDAY MARCH 17

SESSION 3 | 9.15 - 10.45

■ WEDNESDAY MARCH 18

SESSION 4 | 09.15 - 10.45

SESSION 5 | 11.00 - 12.30

■ THURSDAY MARCH 19

SESSION 6 | 9.15 - 10.45

■ FRIDAY MARCH 20

SESSION 7 | 09.15 - 10.45

SESSION 8 | 11.00 - 12.30

■ MONDAY MARCH 23

SESSION 9 | 09.15 - 10.45

SESSION 10 | 11.00 - 12.30

■ TUESDAY MARCH 24

SESSION 11 | 09.15 - 10.45

SESSION 12 | 11.00 - 12.30

TOPICS

- MODELLING
- LINEAR PROGRAMMING
- MIXED INTEGER PROGRAMMING
- OPTIMISATION PROGRAMMING LANGUAGE
- COLUMN GENERATION
- CONSTRAINT PROGRAMMING
- LOCAL SEARCH & METAHEURISTICS

General Information

APPLICATION DEADLINE

WHO SHOULD APPLY

MBA or PhD Students or professionals with a high level of interest in Optimization problems

HOW TO APPLY

Submit a current resume and a statement of interest.

DEADLINE
January 15, 2015.

More Information

For any further questions, please contact the Admissions Office:

Marta Romero
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Venue

Zaragoza Logistics Center
Edificio Náyade 5
C/ Bari 55 (PLAZA)
50197 Zaragoza, Spain

Registration Fee

2160 €
Special rates for participants attending 2 courses (25%) and more than 2 (40%).
This fee includes tuition and materials.
Accommodation must be arranged by the participants individually and is not included in the course fee.
The program is taught entirely in English.

Other spring seminars in the spring will include:
System Dynamics
Humanitarian Supply Chains
Revenue Management

MIT GLOBAL SCALE NETWORK

ZARAGOZA. LOGISTICS center