2nd Conference on Learning Factories
Competitive production in Europe through education and training

May 10th 2012
Vienna University of Technology

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Agenda

09:00
Opening of the conference
Rector of the Vienna University of Technology, Prof. Sabine Seidler
Chairman: Vice president of the "Initiative on European Learning Factories" Prof. Wilfried Sihn [Vienna University of Technology]

Block I

Universities

09:15
Session 1: Potential of Learning Factories as education and innovation centres for universities and the production industry
Speaker: Prof. Kurt Matyas (TU Vienna)

09:45
Session 2: Hands-on Training Center for Industrial Engineering in Higher Education
Speaker: Prof. Jochen Deuse (TU Dortmund)

10:15
Session 3: 5 years Process Learning Factory CIP at TU Darmstadt - Concept, Results, Experiences and still new Challenges
Speaker: President of the "Initiative on European Learning Factories" Prof. Eberhard Abele (TU Darmstadt)

10:45
Coffee break

11:15
Session 4: Green Factories Bavaria
Speaker: Prof. Gunther Reinhart (TU Munich)

Block II

Industry

11:45
Session 5: Multi-Dimensional Networked Learning within the ESB Logistics Learning Factory - Innovative approach, teaching-learning concept and engineering project games
Speaker: Prof. Vera Hummel, Prof. Harald Augustin (Ostfalia University)

12:15
Lunch

13:15
Session 6: Learning shopfloor - continuous improvement
Speaker: Dr. Rudolf Hamp (Opel Wien GmbH)

13:45
Session 7: Excellent Qualified and Trained Employees - The Key for the successful implementation of Lean Production
Speaker: DI (FH) Frank Werz, MBA

14:15
Coffee break

14:45
Session 8: Sometimes cold or wide, sometimes fast or dark - boosting changeability by learning factories
Speaker: Klaus Zimmermann (Festo Didactic GmbH)

Block III

TU Vienna Learning Factory

15:15
Session 9: Education for the 21st century - impacts for teaching and learning
Speaker: Prof. Markus Tomaschitz (Magna International Europe AG)

15:45
Session 10: Vision and implementation of the Learning and Innovation Factory of the Vienna University of Technology
Speaker: Prof. Wilfried Sihn, Prof. Friedrich Blaicher, Prof. Detlef Gerhard (TU Vienna)

16:10
Closing of the conference

16:20
Transport to the Institute for Production Engineering and Laser Technology

17:00
Visit and inspection of the Learning and Innovation Factory of the TU Vienna

18:00
Transport back to the Vienna University of Technology

19:30
Dinner event at the Vienna city hall
Impressum

Offenlegung gemäß § 25 Mediengesetz:

Institut für Managementwissenschaften, Bereich Betriebstechnik und Systemplanung, an der TU Wien, 1040 Wien

Leiter des Bereiches Betriebstechnik und Systemplanung

Univ.-Prof. Dr. Wilfried Sihn
Andreas Jager MSc., MBA

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Technische Universität Wien
Institut für Managementwissenschaften
Bereich Betriebstechnik und Systemplanung
Theresianumgasse 27
A-1040 Wien
Tel.: +43 1 58801 33040
Fax: +43 1 58801 33094
Univ.-Prof. Dipl.-Ing. Dr. Kurt Matyas, born in 1963 is professor at the Institute of Management Science – Division of Industrial- and Systems Engineering of the Vienna University of Technology since 2001. His research and teaching topics cover production management, logistics and maintenance. Kurt Matyas published more than 60 scientific articles and 4 books.

In addition to his teaching and research activities, Prof. Matyas is managing numerous research projects at the Vienna University of Technology and together with Fraunhofer Austria, he supervised applied research projects and consultancy projects with manufacturing companies.

He is dean for academic affairs at the Faculty of Mechanical and Industrial Engineering since 2008. He is also Vice President of the Austrian Association of Industrial Engineering & Management since 2006.
Fraunhofer Austria Research GmbH is performing applied and industry oriented research. Projects are dealing with the planning and optimization of the structure, organization and management of industrial and service enterprises or their logistics networks and is specialised in structuring and optimization of production and logistics processes in a high-tech and highly automated environment. Special emphasis is given to the matching of IT systems with the requirements of operational domains in particular with respect to the organisation of socio-technological systems. FhA is co-operating with the Institute of Management Science of the Vienna University of Technology and maintains numerous contacts to industry, academia and research institutions in Western, Eastern and South-Eastern Europe.

Founded in 1815, the Vienna University of Technology is renowned for its long tradition. It finds high international and domestic recognition in teaching and research and as partner of innovation oriented enterprises. The Institute of Management Science / Department for Industrial Engineering and System Design (IMW) can offer expertise in the main areas such as Production Management & Logistics Management as well as Quality-, Process- and Product Management. Research concentrates on the processing of scientific findings for practical applications. Numerous positive results both in application-oriented research projects as well as industry projects proof the reliable methodological background of the department and form a broad basis of satisfied partners and customers.

Potential of Learning Factories as education and innovation centres for universities and the production industry
Potential of Learning Factories as education and innovation centers for universities and production industry

Prof. Dr. Kurt Matyas

Vienna University of Technology
Institute of Management Science
Industrial and Systems Engineering

Fraunhofer Austria Research GmbH
Division Production and Logistics Management

The great aim of education is not knowledge but action.

Herbert Spencer
(1820-1903)
British philosopher and sociologist
Potential of Learning Factories as education and innovation centers for universities and production industry

CURRENT REQUIREMENTS TO HIGHER AND ADVANCED EDUCATION

Higher and Advanced Education Requirements

- After 2 weeks:
  - 90% recall of what we say and DO
  - 70% recall of what we say
  - 50% recall of what we hear and see
  - 30% recall of what we see
  - 20% recall of what we hear
  - 10% recall of what we read

- Doing the real thing
- Simulating the real experience
- Practice doing
- Participating in a discussion
- Seeing it done on location
- Demonstration
- Hearing
- Reading

Active Receiving vs. Passive Receiving

from scientific point of view
Higher and Advanced Education
Requirements

**KNOWLEDGE as 4th production factor**

- **Production factors**
  - material
  - asset
  - people
  - knowledge

- **Knowledge covering through enterprise knowledge management**
- **Knowledge development through training and advanced education**

Knowledge as:
- useful resource
- innovation factor
- competitive advantage
- core competence
- in a fast moving time

- **Corporate knowledge**
  - implicit
  - explicit

- **Individual knowledge**
  - methodological expertise
  - professional competence

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Higher and Advanced Education
Requirements

**Current trends**

- Working & Learning as origin for ability to innovate
- Qualification related to a specific field instead of diversified education
- Location:
  - Workers: in-house training
  - Management: extern via experts
- Production industry:
  - Practical training already during the advanced education
  - Mapping of real production processes

Almost 20% of consumed classes concern subjects of technics and production
Potential of Learning Factories as education and innovation centers for universities and production industry

COMMON UNDERSTANDING OF A LEARNING FACTORY

Learning Factory
Common Understanding

contemporary manufacturing demonstration center application test center continuous improvement
leading education tool competence
labour situation alternative training methods innovation research
discover technical, analytic, planning skills
interpersonal ability
training for industry interactive participation education for students
hands-on training real experience
Learning Factory
Best-Case Characteristics

- state-of-the-art equipment, modern facilities - similar to an industrial setting
- flexible, versatile, re-configurable
- interdisciplinary, multi-purpose

Learning Factory

Potential of Learning Factories as education and innovation centers for universities and production industry

OPPORTUNITIES OF LEARNING FACTORIES
University - Industry Partnership
Win-Win Situation

Universities
- Higher Education
- Industry Projects
- Technology
- Financial Support
- Potential Employer

Industry
- Advanced Education
- Access to Science
- Science Center
- Science Marketing
- Recruiting

Cooperation

University - Industry Partnership
Win-Win Situation

- Curriculum based on direct linkage of theoretical studies with practice-based project for students
- Learning Factory as an integral part of the syllabus
- Targets:
  - Strong foundation in engineering science fundamentals
  - Manufacturing and project related design process and business realities
  - Knowledge of latest technologies or methods
  - Management and application to solve problems
  - Creativity, Communication, ability to work in a team
- Practice-oriented through cooperation projects with companies

April 12
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University - Industry Partnership
Win-Win Situation

Holistic approach instead of limited perspective

Motivation of employees

Exploitation of employee’s methods expertise

Increase of innovation potential

Practice in an ideal training infrastructure

Ability to implement learned tasks in the own company

Industry

Advanced Education

Access to Science

Science Center

Science Marketing

Recruiting

University - Industry Partnership
Win-Win Situation

Universities

Higher Education

Industry Projects

Technology

Financial Support

Potential Employer

- Infrastructure for involving industry actively in the educational process
- Technology transfer between universities and companies
- Common technology development
- Aspiration to technology leadership
University - Industry Partnership
Win-Win Situation

- Extension of company bounded perspective
- Holistic product and process optimization
- Industry & Science
- Know-how increase and transfer
- Competitive advantage through state-of-the-art innovation
- Testing and developing of methods and technologies

Industry
- Advanced Education
- Access to Science
- Science Center
- Science Marketing
- Recruiting

Marketing
- High presence of the company’s brand and research activities
- Common appearance with universities or research institutes
- Mutual image transfer

Recruiting
- Collaboration with prospective alumni
- Influence on key areas of training
- High exposure as attractive employer
- Winning of potential job candidates
University - Industry Partnership
Win-Win Situation

RESULT:

Universities
- Higher Education
- Industry Projects
- Technology
- Financial Support
- Potential Employer

Industry
- Advanced Education
- Access to science
- Science Center
- Science Marketing
- Recruiting

Cooperation

Top qualified staff

Potential of Learning Factories as education and innovation centers for universities and production industry

Prof. Dr. Kurt Matyas

Questions