



Conference Rapid Product Development and Manufacturing

University of Ljubljana, Faculty of Mechanical Engineering, 30. 9. 2010

International conference

RAPID DEVELOPMENT AND MANUFACTURING

Concepts and technologies for rapid prototype and product development and manufacturing support

IB-PROCADD d.o.o.
Ljubljana, October 2010

This autumn, company IB-PROCADD in cooperation with partners prepared an international conference with many interesting lectures and demo grounds. Conference titled **RAPID PRODUCT DEVELOPMENT AND MANUFACTURING** introduced us with concepts and technologies for rapid prototype and product development and manufacturing support.

Conference took place on September 30th at Faculty of Mechanical Engineering in Ljubljana, and was organized by [University of Ljubljana, Faculty of Mechanical Engineering](#), company [IB-PROCADD d.o.o.](#) and [Institute for Innovation and Development of University of Ljubljana](#). The conference was supported also by media partners, the [IRT3000 Magazine](#) and web portal [Strojnistvo.com](#).



Picture 1: High interest for the conference.

Modern technologies, which we daily initiate in our working processes, are more and more advanced each day. They are enabling us faster, better and more effective solutions, which optimize our time and costs, increase our productivity and competitive position, and therefore make the way from idea to the final product easier.

When we talk about the transfer of knowledge on new processes and technologies, linking of scientific sphere with economy plays an enormous role. Connecting scientists and companies has once again proved to be an important process, which resulted in the high attendance of the Conference. About **20 experts** from scientific and academic spheres from Norway, Belgium, Great Britain, Germany and Slovenia lectured to more than **150 participants**. Two lectures were also streamed live.

In the forenoon part of the conference there were common lectures for all participants. The conference was opened with the introduction speech *Development and research trends of Faculty of Mechanical Engineering of University of Ljubljana in the field of rapid prototype and final product development and manufacturing* by the Dean of Faculty of Mechanical Engineering **Ph.D. Jože Duhovnik**. In his later lecture about industrial design and manufacturing of prototypes in virtual environment, he also introduced project EGPR (European Global Product Realization) and their cooperation with foreign faculties. Mr. Duhovnik emphasized, that own development is the foundation of economy. Very important is also rapid conquering of products, which include development and manufacturing, therefore the concept of entire development of a product.



Picture 2: Ph.D. Jože Duhovnik, Dean of Faculty of Mechanical Engineering, UL.



Picture 3: Ph.D. Janez Kopač, Faculty of Mechanical Engineering, UL.

Ph.D. Janez Kopač from Faculty of Mechanical Engineering of University of Ljubljana shortly introduced laboratory LABOD (Laboratory for cutting), which was visited by the participants after the lectures.

Ph.D. Klas Boivie from Norway research centre for production SINTEF Raufoss Manufacturing AS gave a short overview and presented the trends in the field of additive manufacturing technology. He continued with introducing the possibilities, which are offered by hybrid manufacturing that represents the integration of additive manufacturing into classical manufacturing processes, where also the CNC technologies are included. He emphasized that industry, when investing in new technologies, is above all interested in the advantages gained by it.



Picture 4: Ph.D. Klas Boivie, SINTEF Raufoss Manufacturing AS.

Ph.D. Slavko Dolinšek, director of Institute for Innovation and Development of University of Ljubljana, made a short overview of the development in the field

of rapid prototyping, tools production, and rapid manufacturing in Slovenia. He continued with presentation of projects, which they performed together with different Slovenian companies. Among other he exposed that, due to the smaller mass-production, the companies must be very flexible and opened to new technologies.



Picture 5: Ph.D. Slavko Dolinšek, Institute for Innovation and Development UL.

During the refreshment break the participants were able to examine the demo grounds of different companies and organizations from Slovenia and foreign countries. The conference continued with a video lecture by **Ph.D. Imre Horvath** from Delft University of Technology. He lectured about the current coexistence of virtual and physical prototyping.

With his lecture *How to choose the right rapid prototyping system* the representative of company Z Corporation **Bryan Ferrand** introduced different procedures of additive technology, which must be carefully chosen on the basis of our needs and wishes. He also presented company Z Corporation, which is known by 3D printers ZPrinter manufacturing. In this year they supplement their offer of additive systems with ZBuilder Ultra. Ferrand exposed the differences between mentioned systems and placed their employability into design-development process.

Katrien Lenaerts from Belgium company Materialise lectured about the role of software in the process of additive manufacturing. She presented supportive and other services of their company, as well as the software they are developing.

Later on in a video lecture **Jean-Michel Koch** from company Geomagic demonstrated the employment of reverse engineering in industry. In Geomagic Studio software he represented the procedure of 3D model simulation from point cloud to smart CAD model.

Forenoon part was concluded by **Bojan Zupan**, director of company ib-CADdy d.o.o. with lecture *Faster from idea to product with 3D technologies*, where he presented the advantages of 3D technologies during several stages of new product development, from design to marketing of the final product.

After a short lunch break and examination of demo grounds the afternoon part of the conference, which was divided in two panels, followed. One panel was dedicated to **processes of 3D digital data capture and use**, meanwhile the other one was dedicated to **additive manufacturing technologies and processes**.



Picture 6: Ph.D. Andrej Lipej, Turboinštitut d.d.

First lecture in Panel 1 was carried out by **Ph.D. Nikola Vukašinić** from laboratory LECAD, Faculty of Mechanical Engineering in Ljubljana. In his lecture *Freeform surfaces scanning and modelling based on gained points* he talked about laser triangulation and its influence to the measures quality.

The following lecture, given by **Ph.D. Janez Rihtaršič**, also from laboratory LECAD, was titled *Products drafting – determination of working principles with the assistance of dedicated software*.

Ph.D. Andrej Lipej from company Turboinštitut d.d. introduced the participants with the Computational

Fluid Dynamics (CFD) technologies. The last lecturer in Panel 1, **Gregor Berginc** from company XLAB d.o.o. presented, how to get three-dimensional shape from photographs, as well as introduced the tools, developed for those purposes.

Panel 2 started with the lecture of young researcher **Kaja Antlejš** from company IB-PROCADD d.o.o. on potential of DLP technology for designing new products.

After the lecture on laser sintering technology by **Matic Krznar** from Regional Technological Centre Zasavje d.o.o., **Andrej Žužek** from company IB-PROCADD d.o.o. and **Jure Verderber**, student from Faculty of Mechanical Engineering in Ljubljana represented the rapid prototyping system ZBuilder Ultra.

At the end **Jure Sternad** and **Kristjan Celec** (both IB-PROCADD d.o.o.) introduced some of the company's latest projects on three-dimensional digital shape sampling and processing, as well as manufacturing of physical prototypes and products on 3D printers.



Picture 7: Kaja Antlejš, IB-PROCAD d.o.o.

After the lectures all participants, divided in four smaller groups, examined the **demo grounds**, where presentations on processes and tools for rapid prototype and final product development and manufacturing took place. They participated at guided tours through **laboratory LABOD** with its newest equipment, rapid prototyping machine **ZBuilder Ultra**, and through **laboratory LECAD**, the Laboratory Unit of Computer-Aided Design. The processes of **3D printing** and **3D scanning** were also presented live at the faculty hall.



Picture 8: Laboratory LABOD.



Picture 10: Demo grounds of 3D scanning and 3D printing.



Picture 9: Laboratory LECAD.



Picture 11: Demo grounds.

Beside the mentioned presentations on processes and tools, the participants also had the chance to examine demo grounds from **Institute of Innovation and Development of University of Ljubljana**, **IRT3000 magazine**, **web portal Strojnistvo.com**, **Regional Technological Centre Zasavje d.o.o.** and demo grounds of companies **Materialise**, **ib-CADdy d.o.o.**, **XLAB d.o.o.** and **Pro anima**, **KLIK magazine**.

Take a few minutes of your time and take a look at the photographs on **web portal www.3dt.si**.

Soon we will also publish an e-book of lectures, as well as video recordings of lectures. When the material will be available, we will of course let you know.

Organizatorji:

Univerza v Ljubljani
Fakulteta za strojništvo



Medijska partnerja:

