





Commission

European

WIMB

Kick-off meeting

Barcelona, 3-5 March 2014



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University of Banja Luka - UBL (P7)



- UBL (P7) was founded in 1975.
- The second largest university in B&H and the largest university in Republic of Srpska
- Circa 17.000 students
- Circa 1000 employees (2/3 teaching staff and 1/3 administrative staff)

University of Banja Luka consists of 14 faculties:

- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering
- Faculty of Technology,
- Faculty of Law
- Faculty of Economics
- Faculty of Medicine
- Faculty of Forestry



- Faculty of Agriculture
- Faculty of Philosophy
- Faculty of Architecture and Civil Engineering
- Faculty of Natural Sciences and Mathematics
- Academy of Arts,
- Faculty of Political Sciences
- Faculty of Physical Education and Sport







The studies are organized in "Bologna" paradigm

- Introducing ECTS system
- Three cycles system
- The 1st cycle (<u>bachelor degree</u>, studies lasting from 6 to 8 semesters/ 180-240 ECTS credits
- The 2nd cycle (<u>master degree</u>) studies lasting from 2 to 4 semesters/ 60 -120 ECTS credits (both cycles together minumum of 300 ECTS credits)
- The 3rd cycle (<u>PhD degree</u>) studies lasting at least
 6 semesters/ 180-240 ECTS credits







Group/team of Key persons from UBL

- Prof. Dr MILAN SLJIVIC, Head of Laboratory for Metal Forming Technology, Faculty of Mechanical Engineering – Contact person
- 2. Prof. Dr **DRAGOLJUB MIRJANIC**, Faculty of Medicine
- 3. Prof. Dr **OSTOJA MILETIC**, Faculty of Mechanical Engineering
- 4. Mr. **MICO STANOJEVIC,** Laboratory for Metal Forming Technology, Faculty of Mechanical Engineering
- 5. Dr. DEJAN DJURDJEVIC, Faculty of Medicine
- 6. DUSKO SLJIVIC, Faculty of Physical Education and Sport

- 7. Mr. JOVAN SKUNDRIC, Faculty of Mechanical Engineering
- 8. SANJA MAGLOV, Faculty of Mechanical Engineering







University of Banja Luka - UBL (P7) Field of expertise

<u>Competences, capacity and know how of the Mechanical</u> <u>Faculty in implementing project activities:</u>

 R&D on Metal Forming, relevant Production
 Systems and Technology
 Optimization



- R&D on Tool Design and Productivity
- Rapid Prototyping
- ✤ Rapid Tooling







Field of expertise in context of WIMB

• Rapid Prototyping by:

1. Multi-Jet Technologies – practical experience and research on Multi-Jet technologies – **wax casting patterns**, from ThermoJet to ProJet CPX Series (3D Systems) from X-axis 300 DPI to 700 DPI

2. FDM – Dimension Elite , 0,177 mm, ABS Plus











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Field of expertise in context of WIMB

3D RECONSTRUCTION FROM CT

-Currently By Simpleware software solutions – ScanIP, +CAD and FEA modules

- 1. 2D and 3D segmentation
- 2. Good experience with small artefacts and metal artefacts segmentation from Dicom images generated with small radiation – advanced Cone Beam CT solutions by Soredex and common CT by GE
- 3. Customization of filtering
- 4. Optimization of meshing STL surface, for FEA models in MSC Patran/Nastran/Marc









Field of expertise in context of WIMB

3D GENERATION AND ANALYSIS OF VARIOUS POROUS STRUCTURES, THEIR PROTOTYPING AND APPLICATIONS

- *Porosity analysis, simulations nonlnear cases*
- Benchmarking of applications:

Neovius Surfaces, Schoen Gyroid, Schwartz Dymond, Cuboid ..

Additional Capacity:

- 1. FEA by MSC Patran/Nastran/Marc
- 2. SolidWorks Simulation Premium and Flow Simulation
- 3. CAD/CAM trainings CATIA V5 and SolidWorks
- 4. 3D Dimensional Inspection and Measurement by Faro Arm









Role in the WIMB project

- Mapping of domestic and regional supportive institutions for technology transfer, spin-offs establishing and growing within WIMB scope
- Mapping and analysis of potential spin-offs (from excellence of individuals) and already established spin-offs
- Mapping and Analysis for protecting, marketing and business matchmaking of IPR emanated from research









Role in the WIMB project

- Testing in Clinical Conditions based on complex surgery cases in maxillofacial surgery and dentistry
- Organization of trainings for 3D reconstruction in medical applications
- RP, simulations and research of porous and lattice structures, their topological optimization with applications in medical and other lightweight cases







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Role in the WIMB project

- Performing vocational trainings and improvement of advanced technologies education
- 3D Reconstruction from CT with advanced and customized filtering tools
- Research on Rapid Prototyping in medical and other purposes
- Research on innovative solutions for the surgery preparation with advanced materials
- Development of robust surgery planning procedure with high dimensional accuracy reconstruction (0.2mm) from DICOM – maxillofacial applications and dentistry











Thank you for your attention

Contact:

Prof. Milan Sljivic Faculty of Mechanical Enginering University of Banja Luka 78000 Banja Luka milan.sljivic@unibl.rs

