

## Monday 19.07.2021

**9:00 - 9:30 Opening and Welcome ceremony:**

Rector of the Technical University of Cluj-Napoca, Romania: Prof.dr.eng. **Vasile Ţopa**

City Hall Institution of Cluj-Napoca, Romania: **Mayor Emil Boc**

Vice Rector with International relations of Technical University of Cluj-Napoca, Romania: **Prof.dr.eng. Dan Mândru**

Dean of Faculty of Industrial Engineering, Robotics and Production Management (TUCN): **Prof.dr.eng. Corina Birleanu**

Head of Manufacturing Engineering Department (TUCN): **Assoc.Prof.dr.eng. Adrian Trif**

**9:30 - 10:30 BRIGHT project and Summer School presentation, Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO**

**Partners of BRIGHT project presentation.**

**10:30 - 10:45 25 years of succes in 3D printing at TUCN, Prof.dr.eng. Petru Berce, TUCN, RO****10:45 - 12:00 Applications of 3D printing in medicine developed within the National Centre of Innovative Manufacturing (TUCN), Prof.dr.eng. Nicolae Bâlc, TUCN, RO****12:00 - 13:00 Lunch break****13:00 - 14:00 CAD – Computer Aided Design (lecture), Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL****14:00 - 14:30 Presentation of the medical parts to be developed and realized by 3D printing**

+ launching of teams competition, **Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL**

**14:30 - 16:00 Dividing in groups. Groups socializing activity**

## Tuesday 20.07.2021

**9:00 - 10:00 CAD laboratory part 1: selecting and working on medical parts prototypes design (groups)****10:00 - 11:00 Structural optimization: topology optimization, Prof.dr.eng. Nikola Korunovic, Univ. of Nis, SRB****11:00 - 11:30 Medical imaging and project-based learning, Prof.dr.eng. Nikola Vitkovic, Univ. of Nis, SRB****11:30 - 12:00 Computational Design and Digital Fabrication, Prof.dr.eng. Panagiotis Kyratsis, Univ. of Western Macedonia, Greece****12:00 - 13:00 Lunch break****13:00 - 14:00 3D scanning for medical applications, Lecurer.dr.eng. Stefan Bodi, TUCN, RO****14:00 - 15:00 Materials Science and Strength of Materials in medicine (lecture), Prof. dr.eng. Remigiusz Labudzki, Univ.of Poznan, PL****15:00 - 16:00 Defining the specific types of samples to be realized by 3D printing and to be tested (seminar),**

**Assoc.Prof.dr.eng. Sorin Comşa, TUCN, RO**

## Wednesday 21.07.2021

**9:00 - 10:30 CAD laboratory part 2 : working on medical parts prototypes and designing of samples (groups)****10:30 - 11:00 Validation of the proposed solutions by CAD experts – feedback (seminar), Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL****11:00 - 12:00 CAE - Computer Aided Engineering (lecture), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO****12:00 - 13:00 Lunch break****13:00 - 14:30 CAE laboratory: working on medical parts prototypes and samples design (groups)****14:30 - 16:00 Presentation of Materialise company (Leuven, Belgium): CAE / VR / 3D printing, Diana Skopina, NL**

## Thursday 22.07.2021

**9:00 - 10:00 Validation of the proposed solutions by CAE experts – feedback (seminar), Assoc.Prof.dr.eng. Sorin Comşa, TUCN, RO****10:00 - 11:00 3D printing and Rapid Tooling (lecture), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO****11:00 - 12:00 Presentation of SLM Solutions company (Lubeck, Germany), eng. Robin Bappert, DE****12:00 - 13:00 Lunch break****13:00 - 14:00 3D printing laboratory 1: preparing the medical parts and samples to be printed (groups)****14:00 - 15:00 Presentation of Spee3D company (Lübeck, Germany): Cold spray 3D metal printing, a new and fast technology for independent metal manufacturing, Stefan Ritt, DE****15:00 – 16:00 Presentation of Omni 3D company (Poznan, Poland), Mr. Krzysztof Kardach - Chief Technologist Omni3D, PL**

## Friday 23.07.2021

**9:00 - 10:00 3D printing experience – feedback of the experts (workshop / seminar), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO****10:00 - 11:00 3D printing laboratory 2: printing of the improved variants of medical parts and samples (groups)****11:00 – 12:00 Process optimization and software control (lecture), Prof.dr.eng. Nikola Vitkovic, Univ. of Nis, SRB****12:00 – 13:00 Lunch break****13:00 - 13:30 Innovative strategies for medical applications, Oana Buzatu (City Hall Institution of Cluj-Napoca, Romania)****13:30 - 14:00 Conclusions and round table discussion with all participants at the end of the 1<sup>st</sup> week****14:00 – 16:00 Virtual tour of Transylvania region**

## Monday 26.07.2021

- 9:00 - 9:30** Welcome introduction speech about the aims and objective of week no. 2 - Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
- 9:30 - 10:30** **3D printing experience – final feedback on behalf of the 3D printing experts (seminar)**, Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
- 10:30 - 11:00** **Experimental and computational strength analysis in biomedical engineering**, Prof.dr.eng. Cristian Dudescu, TUCN, RO
- 11:00 - 12:00** **Morpho-structural analysis of structures made of biomaterials**, Assoc. Prof. dr. eng. Diana Băilă, Polytechnic University of Bucharest, RO
- 12:00 - 13:00** Lunch break
- 13:00 - 14:00** **3D printed microfluidic systems for biomedical applications**, Prof.dr.eng. Popa Cătălin, TUCN, RO
- 14:00 - 15:00** **Mechanical testing of samples realized by 3D printing processes and SEM analyses:**  
 Mechanical testing of orthoses and prostheses, PhD.eng. Radoslaw Wichniarek, Univ. of Poznan, PL  
 Mechanical testing of standard samples, MSc.eng. Filip Sarbinowski, Univ. of Poznan, PL  
 Preparation and SEM microscopic examinations, MSc.eng. Maria Ratajczak, Univ. of Poznan, PL
- 15:00 - 16:00** **Presentation of 3D systems company (Baden, Germany)**, Business Development Manager Healthcare, Stefan Kapp, DE

## Tuesday 27.07.2021

- 9:00 - 10:00** **Validation and interpretation of the results by mechanical and SEM testing experts – feedback (seminar)**, Prof.dr.eng. Remigiusz Labudzki; MSc.eng. Maria Ratajczak, dr.eng. Radoslaw Wichniarek; Lect. dr.eng. Cristian Vilău & Assoc. prof.dr.eng. Sorin Comsa
- 10:00 - 11:00** **BRIGHT - preparing of the final presentations by students (groups)**
- 11:00 - 12:00** **The engineering behind 3D printing of a human pancreas**, Calin Brandabur, Symme 3D company, Romania
- 12:00 - 13:00** Lunch break
- 13:00 - 14:00** **Presentation of envisionTEC Bio-printing company (Gladbeck, Germany)**, dipl.chem. Carlos Carvalho, DE
- 14:00 - 15:00** **Presentation of Stratasy company: Anatomically realistic 3D printed models from Stratasy**, Mr. Arnaud Toutain, Senior Manager Healthcare EMEA Stratasy (Baden, Germany) and Cristian Foral (**Nutechnologies, Romania**)
- 15:00 - 16:00** **Virtual reality for medical applications**, Prof.dr.eng. Milos Manic, Virginia Commonwealth University, USA

## Wednesday 28.07.2021

- 9:00 - 10:00** **Flexible manufacturing systems in medical applications (lecture)**, Prof.dr.eng. Peter Kostal, STU, SK
- 10:00 - 11:00** **Applications of 3D Printing in medicine at MTF STU in Trnava**, Prof.dr.eng. Peter Kostal & eng. Ivan Molnár, STU, SK
- 11:00 - 12:00** **Biomedical applications and challenges**, Prof.dr.eng. Miroslav Trajanovic, Univ. of Nis, SRB
- 12:00 - 13:00** Lunch break
- 13:00 - 14:00** **Innovative Robots for Medical Applications: New Trends and Challenges**, Prof.dr.eng. Doina Pîslă, TUCN, RO
- 14:00 - 15:00** **The applications of 3D rapid prototyping technologies in cranio-maxillofacial surgery**, dr. Horațiu Rotaru, Univ. of Medicine and Pharmacy, Cluj-Napoca, RO
- 15:00 - 16:00** **Presentation of CAD Works company (Craiova, Romania): SolidWorks, SolidCAM & 3D Printing**, Claudiu Bîrlogeanu, RO

## Thursday 29.07.2021

- 9:00 - 10:00** **Medical engineering standards and tests (lecture)**, Assoc.Prof.dr.eng. Sven Maricic, UNIPU, HR
- 10:00 - 10:30** **The use of VR and AR for medical applications**, Assoc.Prof.dr.eng. Sven Maricic, UNIPU, HR; Ciprian Onețiu, 3Ddesign, RO;
- 10:30 - 12:00** **Applications for VR developed at TUCN**, Assoc.Prof.dr.eng. Dan Sergiu Stan, Lecturer dr.eng. Alin Pleșa, Researcher. eng. Alexandru Oarcea, Researcher. eng. Victor Cobilean, Lecturer dr.eng. Florin Popișter, TUCN, RO
- 12:00 - 13:00** Lunch break
- 13:00 - 14:00** **Presentation of Solfins 3D company (Belgrade, Serbia): Affordable professional 3D solutions for Medical applications**, Miloš Momirović & Mladen Bogicević, SRB
- 14:00 - 14:30** **Presentation of VR / AR applications developed by BIZZCOM company (Bučany, Slovakia)**, Branislav Rabara, SK
- 14:30 - 15:00** BRIGHT evaluation of students
- 15:00 - 16:00** BRIGHT test corrections. **BRIGHT answering related to the test questions. Fulfilling of BRIGHT final questionnaire (groups)**

## Friday 30.07.2021

- 9:00 - 10:15** **Presenting of the 3D printed parts and reports related to the research performed by the groups (seminar)**, Associate prof.dr.eng. Răzvan Păcurar, TUCN, RO and Prof.dr.eng. Remigiusz Labudzki, Univ. of Poznan, PL
- 10:15 - 10:30** **BRIGHT winning awards** - Prof.dr.eng. Remigiusz Labudzki, Univ. of Poznan, PL + Assoc. Prof.dr.eng. Răzvan Păcurar, TUCN, RO
- 10:30 - 11:00** **Presenting of developing common research projects focused on specific topics related to medicine –** Development Agency of The North-West Region of Romania (part 1), Cristian Otgon, Department of Intelligent Specialization, RO
- 11:00 - 11:30** **Presenting of developing common research projects focused on specific topics related to medicine –** Development Agency of The North-West Region of Romania (part 2), Laviniu Chiș, Department of INNO Platform, RO
- 11:30 - 12:00** **Presenting and opportunities of joining research projects**, Bianca Muntean, Transylvania IT Cluster, RO
- 12:00 - 12:15** **Presenting and opportunities of joining research projects at local and regional level**, Emilia Botezan, City Hall Institution of Cluj-Napoca, RO
- 12:15 - 13:00** **Round table with medical and industrial partners of BRIGHT. Defining of potential common topics for future collaboration. Defining of possible diploma projects** - Assoc.Prof.dr.eng. Dan Sergiu Stan, TUCN, RO
- 13:00 - 14:00** Lunch break
- 14:00 - 14:30** **Presenting of disseminating opportunities MDPI Romania**, HR Manager Irina Pelin and Ms. Anca Banu, RO
- 14:30 - 15:00** **Presenting of publishing opportunities & launching of new book project in the field of 3D printing**, Danijela Duric, Head of Publishing Operations, IntechOpen, London, UK
- 15:00 - 16:00** BRIGHT closing ceremony. Future perspectives & activities of the BRIGHT project – Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO