



PERSONAL INFORMATION

Nicolae BÂLC



☎ 0264 401794

✉ Nicolae.Balc@tcm.utcluj.ro

Date of birth [REDACTED] | Nationality Romanian

ACTUAL EMPLOYER

• Date	1990
• Department	Manufacturing Engineering Department; Machine Building Faculty
• Profession	Engineer, Manufacturing Engineering, Professor
• Position held	Professor
• Main activity	Teaching and Research
• PhD Coordinator	Yes
• Domain	Industrial Engineering

EDUCATION AND TRAINING

• Year	1987
• Name and type of organization	Polytechnic Institute of Cluj-Napoca, Faculty of Mechanics
• Title	Engineer
• Specialization	Manufacturing Engineering
• Year	1994
• Name and type of organization	Technical University of Cluj-Napoca
• Title	European Master of Science (Honour Degree)
• Specialization	Mechanical Engineering and Energy Management
• Year	2001
• Name and type of organization	Technical University of Cluj-Napoca
• Title	Doctor of Engineering
• Specialization	Industrial Engineering

TEACHING ACTIVITY WORK EXPERIENCE

COURSE LEADER	PROGRAM	YEAR
Non-traditional Technologies	Industrial Engineering	III
Rapid Prototyping	Industrial Design	IV
Design for Competitive Manufacturing	Master IVFC-Eng	I
Innovative Manufacturing for RPD	Master IVFC-Eng	II

SCIENTIFIC EXPERIENCE

- Non-traditional Technologies; Selective Laser Melting; Selective Laser Sintering; Water Jet Cutting; Investment Casting of Complex Metal Parts;
- Product Design for Competitive Manufacturing, / Innovative Manufacturing for Rapid Product Development, Industrial Applications of Rapid Prototyping;
- Medical applications of RP / Manufacturing of the customised medical implants.

PERSONAL SKILLS

Native language Romanian

Foreign languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
French	B2	B2	B2	B2	B2

SCIENTIFIC ACTIVITY

- **Scientific Coordinator** of 31 PhD Thesis (18 defended PhD thesis and 13 ongoing PhD thesis)
- **Patents:** 5; 2 international (registered in USA and Germany) and 3 national patents
- **18 books published** (11 as first author / editor)
- **107 published scientific papers**, in the last 10 years (**37 ISI indexed**, 28 BDI indexed and 42 published in other journals/volumes)
- **Reviewer** of the Rapid Prototyping Journal (ISI)
- **Chairman of the International Conference: MTeM 2013, MTeM 2015, MTeM 2017 and MTeM 2019:** „The 14th International Conference on Modern Technologies in Manufacturing”, 10-12 October, 2019, <http://www.mtem.utcluj.ro/>
- **Laureate of the Romanian Academy:** “Henri Coandă” prize of the Romanian Academy/2017, for publishing the book “Aplicațiile Medicale ale Tehnologiilor de Fabricație prin Adăugare de Material”.

INTERNATIONAL COOPERATION

- **Honorary Professor** of "Transylvania" University from Braşov (Senate decision from November 24th, 2000)
- **Research Associate** at Loughborough University (UK) (2 Research Contracts: in 2002 Work Permit E-766013 and in 2003 Work Permit E-865239), Dept. of Design and Technology
- **Visiting Academic** at Nottingham University (UK) - courses held: Rapid Prototyping, Design for Manufacture and Concurrent Engineering
- **Invited Professor** Nottingham University (UK), De Montfort University – Leicester
- **Invited Lecturer** at the universities from Poznan, Maribor, Debrecen, Miskolc, Viena and Rijeka (courses held within these universities)
- **Invited Speaker** at Dover Presidents Meeting in 2009 (DE-STA-CO Europe GmbH) (<http://www.dovercorporation.com/>), N. Bâlc: “Engineering resources in CEE, including Romania”, Warsaw, 3rd of March 2009, Poland.

MANAGERIAL EXPERIENCE

- **Dean of the Machine Building Faculty:** 4 years (2016 – 2020)
- **Head of Department:** for 12 years (2004-2016), at Manufacturing Engineering Department (Technical University of Cluj-Napoca)
- **Visibility**
 - CNATDCU Member (committee 16), between 2016-2020, as well in the period 2020-2024
 - Member of the National Council for the Ethics of Scientific Research, Technological Development and Innovation, both in the last term (2016-2020) and in the new term (2020-2024)
 - Member of the National Standardization Commission for Additive Manufacturing
 - Good collaborations with University of Applied Sciences from Aachen (joint H2020 projects, PhD students from Aachen enrolled at TUCN, etc.)
 - Mobile 3D Printing Laboratory (donated from Aachen)
- **Coordinator/Director** of international research projects (Horizon 2020, FP7 și FP6) and national research projects (UEFISCDI, PN II – Partnerships, etc.). Examples: Horizon 2020: AMaTUC – No. 691787, Period: 3 years (01.01.2016-30.12.2018), Coordinator: Prof. Nicolae Bâlc (www.amatuc.com)
- **Coordinator of Manufacturing Engineering Bachelor Program** (Tehnologia Construcțiilor de Masini – TCM), which obtained the International Accreditation: ENAEE (European Network for Accreditation of Engineering Education) – www.enaee.eu
 - TCM Cluj: the 1st Program of Bachelor studies in engineering, from Romania, which received European accreditation: <http://eurace.enaee.eu/> (search using filter by country - Romania);
- **Coordinator of Master Program** – Virtual Engineering and Competitive Manufacturing (in Romanian and English language), held in the last 8 years.

PUBLICATIONS

97 articles published in the last 10 years

(Examples from the last 10 years)

ISI Publications (Q1, Q2, Q3)

1. O. Jucan, R. Gadalean, H. Chicinas, M. Hering, **N. Balc**, C. Popa, “Study on the indirect selective laser sintering (SLS) of WC-Co/PA12 powders for the manufacturing of cemented carbide parts”, International Journal of Refractory Metals and Hard Materials, Elsevier, Volume: 96, 2021, (ISI-Q1, FI: 3.407); <https://doi.org/10.1016/j.ijrmhm.2021.105498>;
2. C. Cosma, M. Moldovan, M. Simion, **N. Balc**, “Impact of laser parameters on additively manufactured cobalt chromium restorations”, Journal of Prosthetic Dentistry, (ISI-Q1, FI: 2.76): <https://www.sciencedirect.com/science/article/pii/S0022391321000330>;
3. Cosma, C; Drstvensek, I; Berce, P; Prunean, S.; Legutko, S; Popa, C.; **Balc, N**; „Physical-Mechanical Characteristics and Microstructure of Ti6Al7Nb Lattice Structures Manufactured by Selective Laser Melting” MATERIALS, Volume: 13 Issue: 18, Article Number: 4123, DOI: 10.3390/ma13184123, Published: SEP 2020, (ISI, FI: 3.424)
4. Cosma, C; Kessler, J; Gebhardt, A; Campbell, I; **Balc, N.**, “Improving the Mechanical Strength of Dental Applications and Lattice Structures SLM Processed”, Publisher: MDPI, ST Alban-Anlage 66, CH-4052 Basel, Switzerland, Volume: 13, Issue 4, Article no: 905, 2020, eISSN: 1996-1944, (ISI, FI: 3.057); DOI: 10.3390/ma13040905;
5. Perini, M; Bosetti, P; **Balc, N**, “Additive manufacturing for repairing: from damage identification and modeling to DLD”, Rapid Prototyping Journal, Publisher: Emerald Group Publishing LTD, UK, Vol. 26, Issue 5, 2020, ISSN: 1355-2546 / eISSN: 1758-7670, (Q1, FI: 3.937); DOI: 10.1108/RPJ-03-2019-0090;
6. Armencea, G., Cosma, C., Dinu, C., Onisor, F., Lazar, M., Berce, P., **Balc, N.**, Baciut, M., Bran, S., Technical queries of a 3D design custom-made implant made from titanium particles for maxillofacial bone reconstruction, Particulate Science and Technology, Volume: 38 Issue 6 Pages 676-684, Published (USA 2020): Taylor & Francis Inc, ISSN: 0272-6351, DOI: 10.1080/02726351.2019.1578846, Q3 – FI=1.619;

7. **N. Balc**, C. Vilău, "Design for Additive Manufacturing, to produce assembled products, by SLS", 8th International Conference on Manufacturing Science and Education (MSE 2017) - Trends in New Industrial Revolution Book Series: MATEC Web of Conferences, Volume: 121, 2017;
 8. Leordean, D, Dudescu, C, Marcu, T, Berce, P, **Balc, N**, "Customized Implants with Specific Properties, Made by Selective Laser Melting", Leordean, D, Dudescu, C, Marcu, T, Berce, P, Balc, N, published in Rapid Prototyping Journal, Volume: 21, Issue 1, Pages: 98-104, 2015 – (Q1, FI: 3.937); WOS:000349647500010;
 9. Viorica Saplontai, Monica Saplontai, Ioan Roman, Dan Leordean, Roxana Trusca, Tamas Toth, Ileana Cojocaru, **Nicolae Balc**, Marioara Moldovan, "Electrochemical and Structural Investigation on T16Al7Nb Alloy, Coated with Hydroxyapatite and Titanium Dioxide", in REVISTA DE CHIMIE, vol. 65, no. 10, pp. 1249-1252, 2014; WOS:000344719500028; (Q3 - FI 1,755);
 10. Monica Saplontai, **Nicolae Balc**, Viorica Saplontai, Ileana Cojocaru, Robert Toth, Marioara Moldovan, "Synthesis and Characterization of Nano Hydroxyapatite Used for Immobilizing Heavy Metals", in Revista de Chimie, vol. 63, no. 12, pp. 1228-1230, 2012; WOS:000313229100005; (Q3 - FI 1,755);
 11. Horatiu Rotaru, Horatiu Stan, Ioan Florian, Ralf Schumacher, Yong-Tae Park, Seong-Gon Kim, Horea Chezan, **Nicolae Balc**, Mihaela Baciut, "Cranioplasty With Custom-Made Implants: Analyzing the Cases of 10 Patients", in Journal of Oral and Maxillofacial Surgery, vol. 70, no. 2, pp. E169-E176, 2012, (Q3 - FI 2,02); WOS:000300053900009.
- **BDI Articles:** 28 scientific papers, registered in international data bases (in the last 10 years)
 - Articles published in **conference proceedings:** 42 scientific papers, scientific papers published publicate in the last 10 years (other than those indexed ISI and BDI)

RESEARCH GRANTS CONTRACTS

51 research contracts :

- **3 grants in international competition**, as a Project Coordinator
- **6 grants in national competition**, as a Project Coordinator

INTERNATIONAL

1. **Horizon 2020:** AMaTUC – No. 691787: „Boosting the scientific excellence and innovation capacity in additive manufacturing of the TUC-N”, period: 01.01.2016 – 30.12.2018, budget: 999.443 Euro, **Coordinator:** Prof. **N. Bâlc** (www.amatuc.com);
2. **Horizon 2020:** DiCoMI – No. 778068: „Directional Composites through Manufacturing Innovation”, period: 01.03.2018 – 28.02.2022, budget: 1.426.500 Euro, **TUCN Coordinator:** Prof. **N. Bâlc** (<http://www.dicomi.eu/>);
3. **Erasmus + KA2: DigiMan** – No. RO01-KA203-063486: „Digital Manufacturing Master Degree to set specialists for the dawn of the Industry 4.0”, period: 01.11.2019 – 30.04.2022, budget 259.324 Euro, **Director: Prof. N. Bâlc** (<http://www.digimanproject.eu/>)
4. **FP7** no. 295016: "Adm-ERA-Reinforcing Additive Manufacturing research cooperation between the Central Metallurgical Research and Development Institute and the European Research Area", period: 01.10.2011 – 01.10.2013, budget: 496.634 €, (**Team leader TUCN:** Prof. **N. Bâlc**), (<http://www.fp7-admera.org/>);
5. **FP6** “Optical 3D Metrology – Automated in-line metrology for quality assurance in the manufacturing industry” – OP3MET (Contract no. 3721 / 2006) – Co-operative Research Project, Partner – Prof. **N. Bâlc**;
6. “Center for Innovative Manufacturing” – international contract – 2005 – funded by KOICA (KOREAN INTERNATIONAL COOPERATION AGENCY), Coordinator: Prof. Dr. eng. Petru Berce (budget 325.000 USD), Coordinator of manufacturing WP: Prof. **Nicolae Bâlc** (Manufacturing WP Budget: 160.000 USD), finished in 2007;
7. **FP5 European project:** EVEN, "European Virtual Engineering Network", 13 partners from 11 EU countries (period: 2002-2003 – <http://www.even.tcd.ie>). Prof. **N. Bâlc** – employed by Loughborough University in that period;
8. Contractor of 3 years **European Project** "National Pilot Centre for Continuing Education in Rapid Prototyping", S-JEP-12490-97, period: 15.12.1997-14.03.2001, budget: 252.000 €, **Coordinator – Prof. N. Bâlc**;
9. **International Contract** no. 28484/05.11.2012, between TUCN and KODEWA GmbH: „Research on developing of F1 car”, finished in 2013, **Director:** Prof. **Nicolae Bâlc**;
10. **International Contract** no. 3135/11.02.2010, between TUCN and DESTACO Europe GmbH: „Design a new version of a clamp and produce physical prototype”, finished in 2011, **Director:** Prof. **Nicolae Bâlc**.

NATIONAL (Examples)

1. **UEFISCDI, Bridge Grant** Project, (2 years) “Optimizarea tipării 3D pentru Aplicații Dentare Personalizate (OpTi-DeP)”, Contract no. 101BG/2016, Period: 01.10.2016-30.09.2018, Budget: 450.000 RON, **Project Coordinator:** Prof. **Nicolae Bâlc**;
2. **PCCDI Project:** “Implementarea tehnologiilor aditive în fabricarea componentelor complexe și suprasolicitate”, No. 77/2018 (Period: 01.03.2018-31.12.2020), TUCN Responsible: Prof.dr.ing. Petru Berce;
3. **UEFISCDI, PP H2020** Project, (2 years), “Support AMaTUC”, Contract no. 11/2016, Period: 2016-2018, **Project Coordinator:** Prof. **Nicolae Bâlc**;
4. **UEFISCDI**, National Grant **PN-II-PT-PCCA-2013-4-0917**, “Implanturi cranio-faciale personalizate obtinute prin prototipare inovativa 3D din materiale compozite ranforsate cu fibra de sticla (PECIFCO)”, Contract no. 115/2014, Period: 3 years (2014-2017), Budget: 250.000 RON, **Team Leader TUCN:** Prof. **N. Bâlc**;
5. **UEFISCDI**, National Grant **PCCE** “New Biocompatible Materials for customized implants made by SLS and SLM (BIOMAPIM)” – contract nr. 5/2010, budget 6.790.297 RON; Consortium Director: Prof. Petru Berce, Team Leader – Prof. Nicolae Bâlc; www.biomapim.utcluj.ro;

6. **UEFISCDI** Grant “Rețea Inovativă de Fabricație” – **CEEX** Contract no. 41/2005, Budget 1.420.000 RON; Consortium Director: Prof. Petru Berce, **Team Leader**: Prof. **Nicolae Bâlc**, <http://www.iman.utcluj.ro> ;
7. **Grant CNCISIS – tip A** Project (3 years): “Cercetări privind utilizarea tehnicilor de FRP și a tomografiei computerizate la fabricarea implantelor ortopedice și maxilo-faciale”, **Director – Prof. N. Bâlc** (Ref. 37118 / 2000, 37118 / 2001 - Cod CNCISIS – tema 26);
8. **Grant CNCISIS - tip A** Project (3 years): “Cercetări privind Fabricația prin Sinterizare Selectivă cu Laser”, **Director - Prof. N. Bâlc**, (Ref. 33532 / 2003, 33385 / 2004 - Cod CNCISIS 406);
9. Contract no. 31716/20.12.2013, Cercetări privind fabricația unui manechin, pentru a simula tratamentul tumorilor. Budget: 29.000 lei, **Director**: Prof. **Nicolae Balc**;
10. **POSDRU Contract** no. 87/1.3/S/64234, Parteneriat transnational, pentru dezvoltarea învățământului preuniversitar tehnic prin aplicarea sistemului german de “Proiecte pentru lucrări practice” în atelierelor școlare din România, **Director**: Conf.dr.ing. Radu A. Munteanu; **Long-term expert**: Prof. **Nicolae Balc**;
11. **POSDRU Contract** no. 89/1.5/S/52603 Multidisciplinaritate în domenii tehnice prioritare ale strategiei naționale de cercetare-dezvoltare-inovare. **Director**: Prof.dr.ing. Aurel Vlaicu; **Long-term expert**: Prof. **Nicolae Balc**;
12. **POSDRU Contract** no. 159/1.5/S/137516, „Parteneriat interuniversitar pentru excelență în inginerie – PARTING”, **Director**: Prof.dr. Călin Munteanu, **Long-term expert**: Prof. **Nicolae Balc**.

PATENTS INTERNATIONAL / NATIONAL

INTERNATIONAL

1. Actuating Device – **USA patent**, owner: DE-STA-CO Company, **N. Bâlc**, D. Leordean, ș.a., Domain: Industrial Engineering, No. US9199358 B2, Date: 1 Dec 2015; <http://www.google.ch/patents/US9199358>;
2. Betätigungsvorrichtung – **European patent**, owner: DE-STA-CO Company, D. Leordean, **N. Bâlc**, ș.a., Domain: Industrial Engineering, No. EP2433750 A1, Date: Mar 28, 2012; <http://www.google.com/patents/EP2433750A1?cl=un> ;

NATIONAL

1. Metoda și dispozitiv de poziționare și fixare al cadrului circular neurochirurgical stereotaxic, **N. Balc** and A. Donca, No. RO129623-A2, Date: 30.07.2014, <http://apps.webofknowledge.com>;
2. Metodă de realizare a suporturilor utilizați în topire selectivă cu laser prin scanare diferențiată, Autori: S. C. Cosma, **N.O. Bâlc**, A.I. Popan, R.E Hendea, Cerere brevet nr. A/10047/2018, 2018;
3. Procedeu și dispozitiv de obținere a plăcilor din materiale compozite polimerice armate cu fibre, Bere P., Berce P., Nemeș O., **Bâlc N.**, No. A/00540/2012, Date: 29.05.2015, <http://pub.osim.ro/publication-server/pdf-document?PN=RO128093%20RO%20128093&iDocId=6900&iepatch=.pdf>;
4. Method and Composite Material for Ornamental synthetic plates manufacturing, Autori: E. Sabău, **N. Balc**, P. Bere, RO130062-A2, <http://research.utcluj.ro/index.php/cereri-de-brevete-2012-2015.html>.