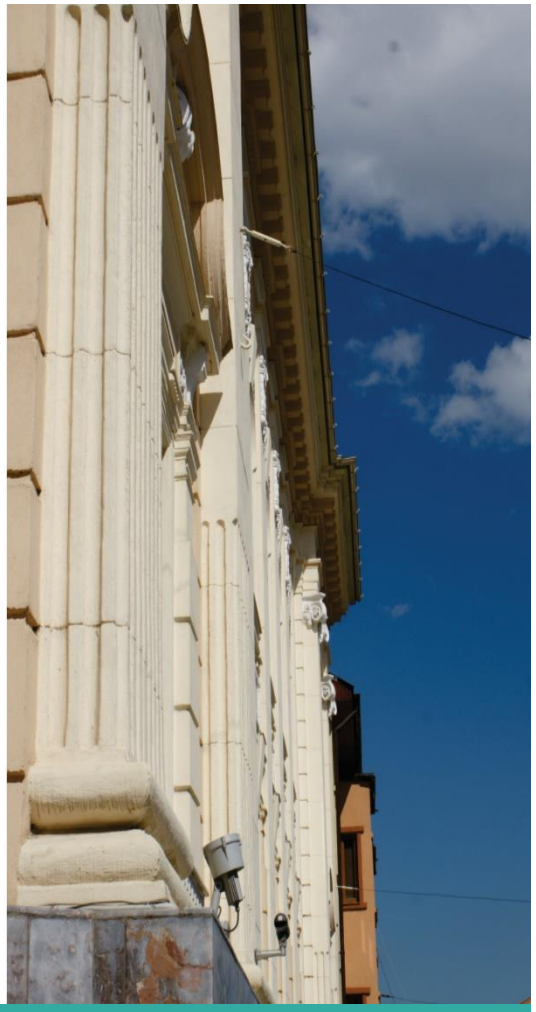
UNIVERSITATEA TEHNICĂ DIN CLUJ-NAPOCA

EUROPEAN UNIVERSITY OF TECHNOLOGY

TECHNICAL UNIVERSITY OF CLUJ - NAPOCA



Report
On
Sustainable Development Goals
2020

"The vision of the Technical University for 2024 represents the projection of a realistic scenario that reflects the centenary history of our university, of the exceptional values and achievements obtained so far, combined in terms of technological trends, globalization processes and last but not least of the European aspirations towards a sustainable society based on cohesion through education, science and culture." (Strategic plan UTCN 2020-2024)

Motto (Rector's Report 2020)

"The future is in the eyes of the one who looks away"

The 2030 Agenda for Sustainable Development, adopted by all Member States of the United Nations in 2015, provides a common plan for peace and prosperity, for people and the planet, now and in the future. At its core are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action from all developed and developing countries - in a global partnership. Thus, it was agreed that the elimination of poverty and other deprivations must converge with various strategies that improve health and education, reduce inequality and stimulate economic growth, while at the same time addressing climate change and contributing to the preservation of the environment.

Higher education did not play a significant role in the initial Millennium Development Goals (SDGs) for the period 2000-2015. But this has changed profoundly with the definition of the DD for the period 2015 – 2030, so now, universities everywhere are interested in achieving these ambitious goals. The University as an institution has a long history, starting as an educational institution, subsequently assuming the function of creating knowledge (research) and more recently the so-called third mission of active employment in society, thus having the role of contributing to the development of society.
The Technical University of Cluj-Napoca is an active partner in the national and international academic community and has an involved presence in the local and regional community.

The purpose of this report is to highlight the involvement and impact in society of the Technical University of Cluj-Napoca in achieving the Sustainable Development Goals (SDGs) adopted by the UN member states in 2015.

The information in this report is taken from the Rector's Report (2019 and 2020) and from the Newsletters on the activity of the Board of Directors, and the bibliometric statistical data are taken from Scopus (SciVal). They represent the activities at the level of the community of teachers, researchers and students from the Technical University of Cluj-Napoca and reflect their alignment with the Sustainable Development Goals.

PARTNERSHIPS FOR GOALS

This objective reflects the fact that partnerships are necessary to ensure the Sustainable Development Goals. Partnerships designed for common goals are stronger if they are achieved between governments, industries and civil society. This objective includes various elements such as financial and development support, public policies, access and development of innovative technologies development of various resources addressing a whole range of systemic aspects.

I. University partnerships at governmental level or with regional non-governmental organizations for direct involvement or contribution in terms of identifying problems and challenges, developing policies and strategies on sustainable development goals.

Clusters (founding member/member)-ClujIT(www.clujit.ro),C-EDU(c-edu.ro), CLEMS(clems.ro),ETREC(www.etrec.ro),Creative Industries(creativetransilvania.ro), ADMATECH(admatech.org),Pro-nZEB(www.pro-nzeb.ro), Spacetech Transilvania(www.spacetech.ro),TREC(www.transylvaniaenergycluster-trec.ro), DRIFMAT (drifmat.ro), AgroFood(agrocluster.ro)

EIB (Euripeana Investment Bank) partnership for transformational investments

Member of the Board **of the National Council of Digital Transformation** (https://www.utcluj.ro/media/documents/2020/CNTD.pdf)

Digital Innovation Hubs
DIH4S(dih4society.ro), Transylvania DigitalInnovation HUB (transilvaniadih.ro)

NGO-DpIT Partnerships(dpit.ro), InnovationLabs (www.innovationlabs.ro)

Junior achievments(www.jaromania.org), North-West RDA(www.nord-vest.ro)

Partnerships industriale :BOSCH, EMERSON, ELECTROGRUP, NTTDATA,TENARIS,FORTECH,CONTINENTAL, StarAssembly

Financial partnershipse : BCR, BTransilvania, BRD

Educational partnership: EUT+, EMBA Hull University

PARTNERSHIPS FOR GOALS

II.Initiating and participating in cross-sectoral dialogues on sustainable development

Projects

- ANTREDOC: Entrepreneurial skills and research excellence in doctoral and postdoctoral programmes, Project co-funded by the European Social Fund through the Human Capital Operational Program 2014-2020, Priority axis 6 - Education and skills, POCU/380/6/13/123927
  antredoc.utcluj.ro

- PAVING: Advanced Practice for Engineering Career Success
  POCU/626/6/13/130354
  paving.utcluj.ro

Workshops and conferences

- Idea's Night – https://www.utcluj.ro/media/notices/2019/Noaptea_ideilor_xAjA63f.pdf
- The limits of expectation - https://www.utcluj.ro/media/notices/2019/afis_caramitru_2019.jpg
- FUTURE – Build with Passion- https://www.utcluj.ro/media/notices/2019/training_Tenaris.pdf
- Super Teach - inspiration for education- https://www.utcluj.ro/media/notices/2019/Super_Teach.pdf
- RAF Romanian – American Foundation at the Technical University of Cluj-Napoca
  https://www.utcluj.ro/media/notices/2019/intalnirea_RAF.pdf
- Infotech – Discover the future-https://www.utcluj.ro/media/notices/2019/Infotech__Discover_the_future.pdf
- Tomorrow's Competences at Cluj-Napoca
  https://www.utcluj.ro/media/notices/2019/Conferinta_Competentele_de_maine_la_Cluj_Napoca.pdf
- Supporting innovation in Development Regions of Romania
  https://www.utcluj.ro/media/notices/2019/Anunt_site_proiect_Banca_Mondiala_2019.pdf
- Alpine NMR Workshop (Frontiers of Magnetic Resonance: Applications to Nano- and Microscopically Structured Systems)
- ELECTRO-SUMMER – summer school for students in disadvantaged environments, https://www.utcluj.ro/media/documents/2019/electro_summer.pdf

NGO collaboration

BEST – bestcj.ro, OSUT – osut.org

PARTNERSHIPS FOR GOALS

III. International Collaborations with Goal to collect data Specific Objectives of Sustainable development

Projects

- European University of Technology
  univ-tech.eu
- Interreg Danube Transnational Program
  www.interreg-danube.eu
- Hungary-Slovakia-Romania-Ukraine ENI CBC Program
  huskroua-cbc.eu
- Space Emergency system towards monitoring geoprocesses
  crimige.cunbm.utcluj.ro

Workshops and conferences

- Investing in People, by Investing in Higher Education and Skills in Africa
  https://www.utcluj.ro/media/notices/2019/Investing_in_people_by_Investing_in_Higher_Education_and_Skills_in_Africa.pdf
- Advancing University Education in Biomedical Engineering and Health Management
  https://www.utcluj.ro/media/notices/2019/Comunicat_presa_Workshop_Talas_Aprilie2019_Kyrmedu-TUCN.pdf
- EAIE Conference and Exhibition
  https://www.utcluj.ro/media/notices/2019/EAIE_2019_gqylzv7.pdf
- Be International at Home
  https://www.utcluj.ro/media/notices/2019/Wokshop_Ab4Az5E.pdf
- Advancing University Education in Biomedical Engineering and Health Management in Zwickau, Germany
  https://www.utcluj.ro/media/notices/2019/Workshop_Zwickau_Ianuarie2019_Kyrmedu-TUCN.pdf
- International Training - Advancing University Education in Biomedical Engineering and Health Management in Kyrgyzstan

PARTNERSHIPS FOR GOALS

IV. Development of international best practices in the field of sustainable development through collaboration and international research

Projects

- Interreg Project
  ctfs.utcluj.ro

- GeoSS Project
  earthobservations.org

Workshops

- RE-Cognition
  https://www.utcluj.ro/media/notices/2019/Re-cognition.pdf

- SMEmPower - A holistic framework for Empowering SME's capacity to increase their energy efficiency
  https://www.utcluj.ro/media/notices/2019/anunt_lansare_proiect.pdf

- Demand Response in Blocks of Buildings - DR BoB
  https://www.utcluj.ro/media/notices/2019/Dr_BoB.pdf

- HEIBus
  https://www.utcluj.ro/media/notices/2019/HEibus.pdf

- GEAR-AT-SME
  https://www.utcluj.ro/media/documents/2020/Comunicat_de_presa.pdf

- BRIGHT
  https://www.utcluj.ro/media/documents/2020/BRIGHT_BCfGkyB.pdf

- Supporting Entrepreneurship and Innovation in Higher Education in Romania
  https://www.oecd.org/cfe/smes/HEInnovate-Romania.pdf

- Institute for Research in Artificial Intelligence
  https://www.utcluj.ro/media/documents/2020/Institutul_de_Cercetare_in_Inteligenta_Artificiala.pdf

PARTNERSHIPS FOR GOALS

V. Involvement of the university in the provision of a sustainable development-oriented education

Specialized courses

- Bachelor's Degree - Engineering of Renewable Systems
- Master's degree in Polygraphic Systems
- Master's degree in Sustainable Printing Hysteria
- Master's degree in Smart Cities
- Master's degree in Green Buildings
- Master Of Vehicle Management and Control Systems
- Bosch Master-Advanced Electrical Systems and Structures
- MASTER SISC - Security of information systems

Postgraduate courses

- Energy efficiency and sustainability for energy managers
  https://decidfr.utcluj.ro/cursuri/4014
- Energy analysis techniques and implementation of buildings with almost zero energy consumption (nZEB)
  https://decidfr.utcluj.ro/cursuri/1931
- Energy efficiency and sustainability for energy managers
  https://decidfr.utcluj.ro/cursuri/4014
- Energy managers for Industry
  https://decidfr.utcluj.ro/cursuri/1131
- Energy managers for cities
  http://decsap.utcluj.ro/cursuri/1511

General courses

Infotech
https://www.utcluj.ro/media/notices/2019/Infotech__Discover_the_future.pdf
FUTURE-Build with Passion
https://www.utcluj.ro/media/notices/2019/training_Tenaris.pdf

QUALITY EDUCATION

Quality education is essential for sustainable development, being an area in which universities excel. Inclusive and equitable education supports addressing various challenges specific to sustainable development is a mechanism for reducing inequities and improving the quality of life

UTCN aims to support the increase of the quality of life and the degree of well-being through support **measures** for the assurance of learning throughout life (LLL-lifelong learning), by providing the general public with access to various types of educational resources, courses and scientific events.

The most important results are:

- Center for Studies and Learning - CESTI that provides various resources and facilities, remedial and personal development programs
  https://cesti.utcluj.ro/
- Provides access to postgraduate, training and development, professional conversion and HRF (LLL type) courses through the DECIDFR platform
  https://decidfr.utcluj.ro/
- Provides an E-Campus platform based on Microsoft technologies for e-learning and hybrid education and the digitization of processes
  https://ecampus.utcluj.ro/,https://utcluj.digital/ecampus.html
- Provides educational resources accessible online (University courses, Problem collection, Guides for practical activities) to the general public
  https://biblioteca.utcluj.ro/carti-online-cu-coperta.html
- Get involved in the community through preparation activities for admission
  https://admitereonline.utcluj.ro/matematica/

Research **performance** at **the** level of the Sustainable Development Goal 4-Quality education

Research performance within SDG 4: Quality Education (2021) TC.170901

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022

72

Scholarly Output

0.62

Field-Weighted Citation Impact

19

International Collaboration

1,719

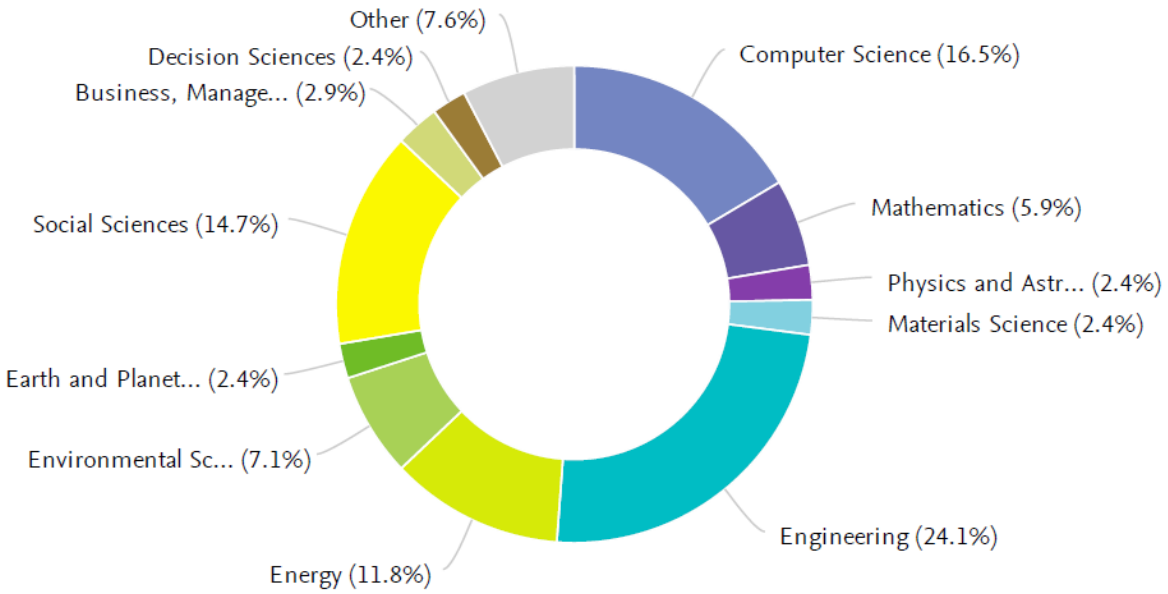
Views Count

161

Citation Count

Publications by Subject Area

Entity: Publications at the Technical University of Cluj-Napoca within SDG 4: Quality Education (2021) | 2016 to 2022 · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 ·



AFORDABLE AND CLEAN ENERGY

This objective proposes global, equitable access to secure, sustainable energy in an affordable manner, being essential because modern energy supports the other sustainable development goals.

UTCN ensures learning and research conditions in modern spaces, in compliance with the latest energy efficiency norms.

The University organizes a series of support activities such as specialized master's courses**,** postgraduate **courses** of specialization, workshops with a focus on energy, resources and environment.

Realizations

Energy efficient renovations, rehabilitations and constructions, according to energy sustainability plans and climate action, with carbon reduction, according to energy consumption reduction plans - EIB partnership

https://www.utcluj.ro/media/decisions/2016/07/27/Plan_strategic.pdf,
https://www.eib.org/en/press/all/2020-385-eur-21-million-european-investment-bank-backing-to-strengthen-research-education-and-innovation-infrastructure-at-the-technical-university-of-cluj-napoca

Projects

SMEMPOWER- Providing direct services to local industry aimed at improving energy efficiency and clean energy (energy efficiency assessments, workshops, research on renewable energy options)
smepower.com

GERATSME – assistance to low-carbon innovations for start-ups and SMEs in industrial parks
www.geratsme.eu

HYTRUST – regional level support (ADRNV) in sustainability and clean energy
www.hytrust.ro

ENTREC – contributions to policy development for clean energy and energy efficiency technologies, active involvement at local, regional and governmental level
https://research.utcluj.ro/tl_files/research/Presentations/EnTReC_Presentation.pdf
https://ec.europa.eu/jrc/communities/sites/jrccties/files/presentation_andrei_ceclan_cluj-napoca_technical_university.pdf
http://energie.gov.ro/electricup/

Research performance

Research performance within SDG 7: Affordable and Clean Energy (2021) TC.170904

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022

595
Scholarly Output
75 3

1.08
Field-Weighted Citation Impact
1.15 2.89

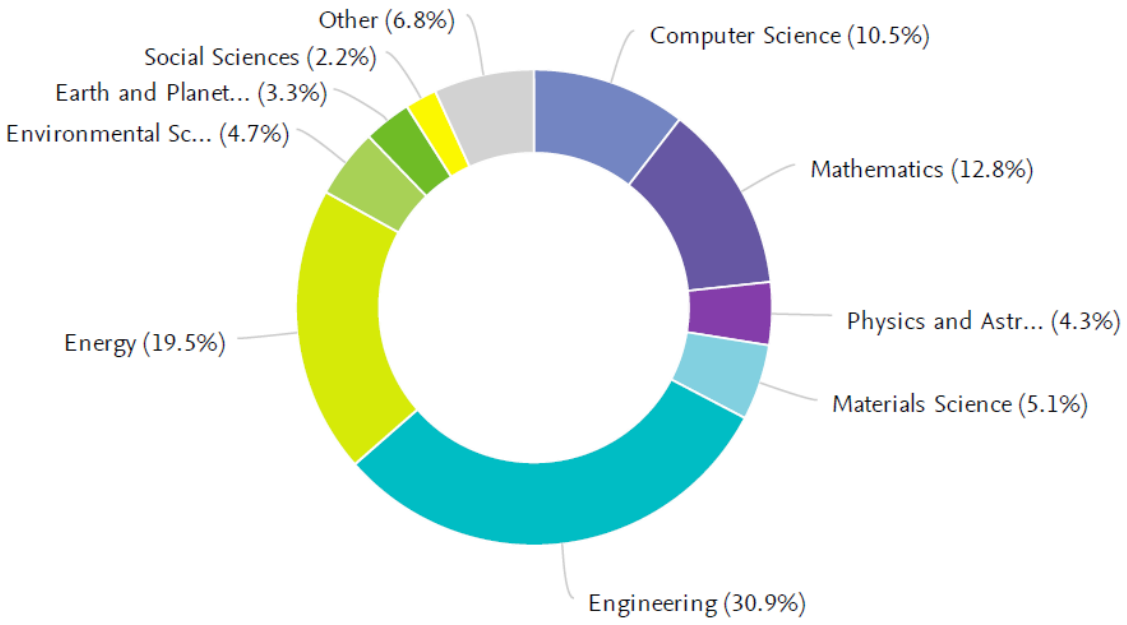
141
International Collaboration
21 1

12,094
Views Count

3,136
Citation Count

Publications by Subject Area

Entity: Publications within SDG 7: Affordable and Clean Energy (2021) | 2016 to 2022 · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 ·



INNOVATIVE INDUSTRIES, RESILIENT INFRASTRUCTURES

This objective focuses on providing an infrastructure capable of supporting sustainable development. Economic growth and the continuous provision of health services, education and a decent standard of living are based on quality infrastructure, and innovation, science and technology are crucial for the development of a sustainable infrastructure.

UTCN, considers the research essential in analyzing and solving global problems, which is why it provides mechanisms for stimulating research and publishing the results with maximum impact and visibility.

Student entrepreneurial society https://sas.utcluj.ro/

Research performance at the level of Sustainable Development Goal 9- Innovative **industries, resilient infrastructure**

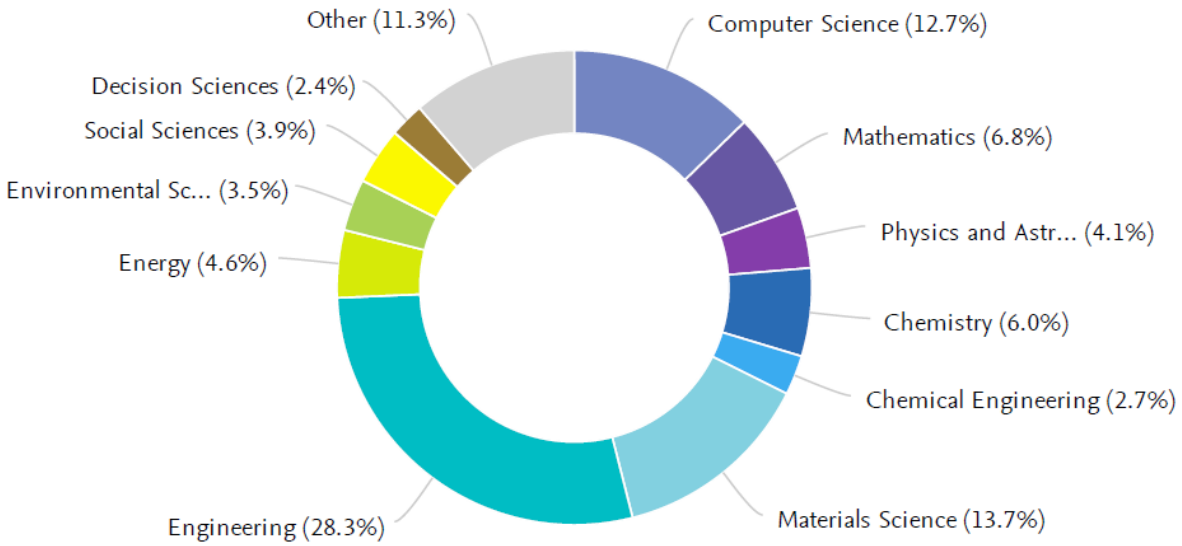
Research performance within SDG 9: Industry, Innovation and Infrastructure (2021) TC.170906

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022

377	0.97	110
Scholarly Output	Field-Weighted Citation Impact	International Collaboration
36 … 9	0.87 … 0.96	10 … 3
11,515	**1,557**	
Views Count	Citation Count	

Publications by Subject Area

Entity: Publications at the Technical University of Cluj-Napoca within SDG 9: Industry, Innovation and Infrastructure (2021) | 2016 to 2022 · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 ·



CITIES AND SUSTAINABLE COMMUNITIES

The objective promotes sustainable cities and communities, reducing the negative impact of cities on the environment, supporting an inclusive, safe, resilient and sustainable context for cities and their communities.

UTCN carries out the promotion and protection of the material cultural heritage in the spaces where it carries out its activity, providing open access and ensuring a good preservation of them by identifying the necessary resources. Through the projects in which it is involved, the University aims to support the intangible cultural heritage by investing in projects and events that promote this heritage. It also ensures the promotion and support of sustainable development of the cities in which the material heritage resides.

Projects

- Project IDArt 53PCCDI/2018 Development of complex methodologies regarding the attribution and authentication of medieval and premodern paintings from the national heritage
  https://idart.utcluj.ro/
- RoCultura project - Horea's Church – a heritage for the future. Capitalizing on an architectural monument from the eighteenth century through virtual reality
  http://cizer.muzeul-etnografic.ro/index.php/ro/acasa/
- RoCultura project - "Innovative techniques in valorization of cultural heritage. The icons from the Sebeș Valley from the collection of the Ethnographic Museum of Transylvania"
  http://valeasebesului.muzeul-etnografic.ro/ro/acasa/
- UEFISCDI PD96/2020 Project - Scientific investigation and valorization of the Dacian ornamental parade shields using virtual/augmented reality techniques - Acronym VART
  https://vart.utcluj.ro/

Conferences, workshops, exhibitions and concerts

Cultural studies and scientific events

http://litere.cunbm.utcluj.ro/fsc/manifestari-stiintifice.html
https://studii-culturale.cunbm.utcluj.ro/

Contributions to the national artistic heritage

http://www.gazetademaramures.ro/expozitiasemestriala-a-studentilor-de-la-programul-arteplastice-pictura-din-centrul-universitar-nord-din-baiamare-21286

http://www.gazetademaramures.ro/expozitia-semestriala-a-studentilor-de-la-programul-arte-plastice-pictura-din-centrul-universitar-nord-din-baia-mare-21286http://www.gazetademaramures.ro/expozitia-semestriala-a-studentilor-de-la-programul-arte-plastice-pictura-din-centrul-universitar-nord-din-baia-mare-21286

Artistic events

https://www.episcopiammsm.ro/images/anul2019/14dec2019/ colinde/mywebalbum/index.html

Research performance at the level of sustainable development goal 11 - Sustainable cities and communities

Research performance within SDG 11: Sustainable Cities and Communities (2021) TC.170908

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022

222

Scholarly Output

0.91

Field-Weighted Citation Impact

51

International Collaboration

4,580

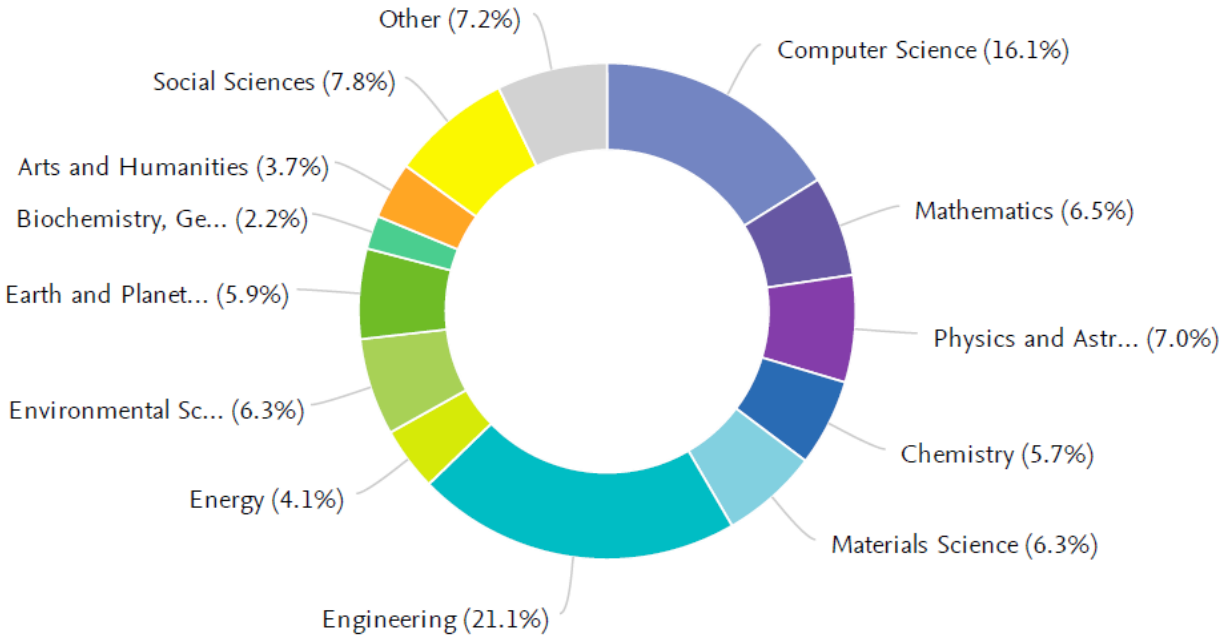
Views Count

805

Citation Count

Publications by Subject Area

Entity: Publications at the Technical University of Cluj-Napoca within SDG 11: Sustainable Cities and Communities (2021) | 2016 to 2022 · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 ·



Research performance at the level of Sustainable Development Goal 3 - Health

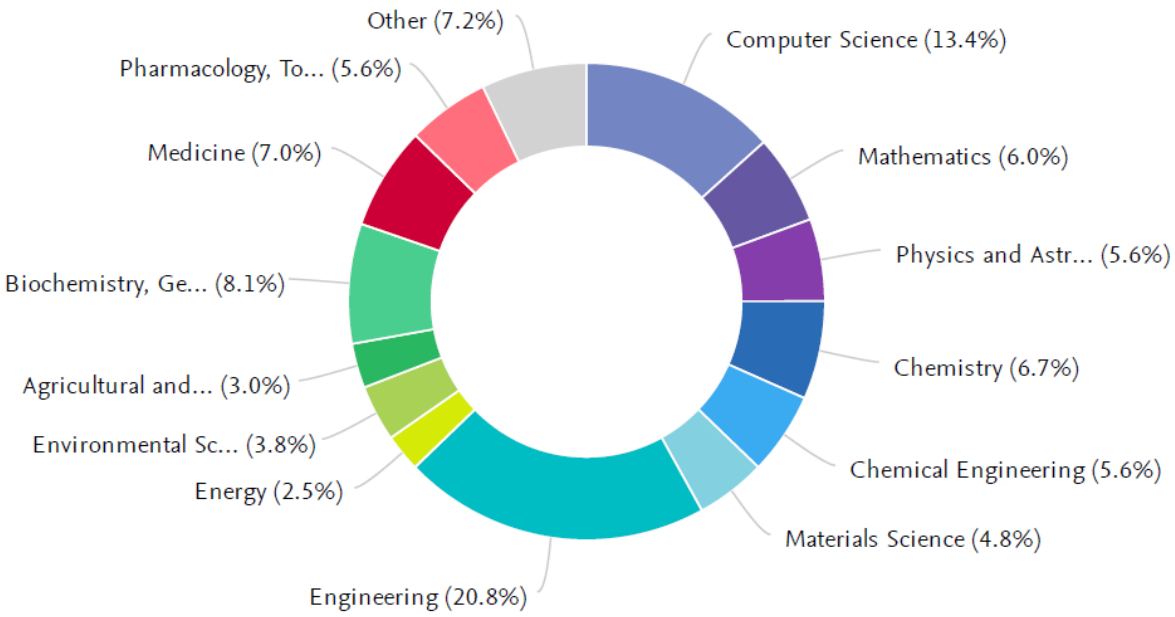
Research performance within SDG 3: Good Health and Well-being (2021) TC.170900

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022

288	1.34	79
Scholarly Output	Field-Weighted Citation Impact	International Collaboration
24 … 1	0.90 … 0.00	5 … 0
6,496	1,824	
Views Count	Citation Count	

Publications by Subject Area

Entity: Publications at the Technical University of Cluj-Napoca within SDG 3: Good Health and Well-being (2021) | 2016 to 2022 · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 ·



Overall research performance

Entity: Technical University of Cluj-Napoca · Year range: 2016 to 2022 · Data source: Scopus, up to 16 Feb 2022 · Explore / edit analysis

5,438 ▲ Scholarly Output	2,542 ▲ Authors	0.91 Field-Weighted Citation Impact
36.6% Open Access		
24,113 Citation Count	4.4 Citations per Publication	37 *h*5-index

Title	Authors	Year	Scopus Source	Citations
Blockchain based decentralized management of demand response programs in smart energy grids *Open Access* View abstract View in Scopus	Pop, C., Cioara, T., Antal, M. and 3 more	2018	Sensors (Switzerland)	305
Analysis of Three IoT-Based Wireless Sensors for Environmental Monitoring View abstract View in Scopus	Mois, G., Folea, S., Sanislav, T.	2017	IEEE Transactions on Instrumentation and Measurement	129
The epichaperome is an integrated chaperome network that facilitates tumour survival *Open Access* View abstract View in Scopus	Rodina, A., Wang, T., Yan, P. and 40 more	2016	Nature	129

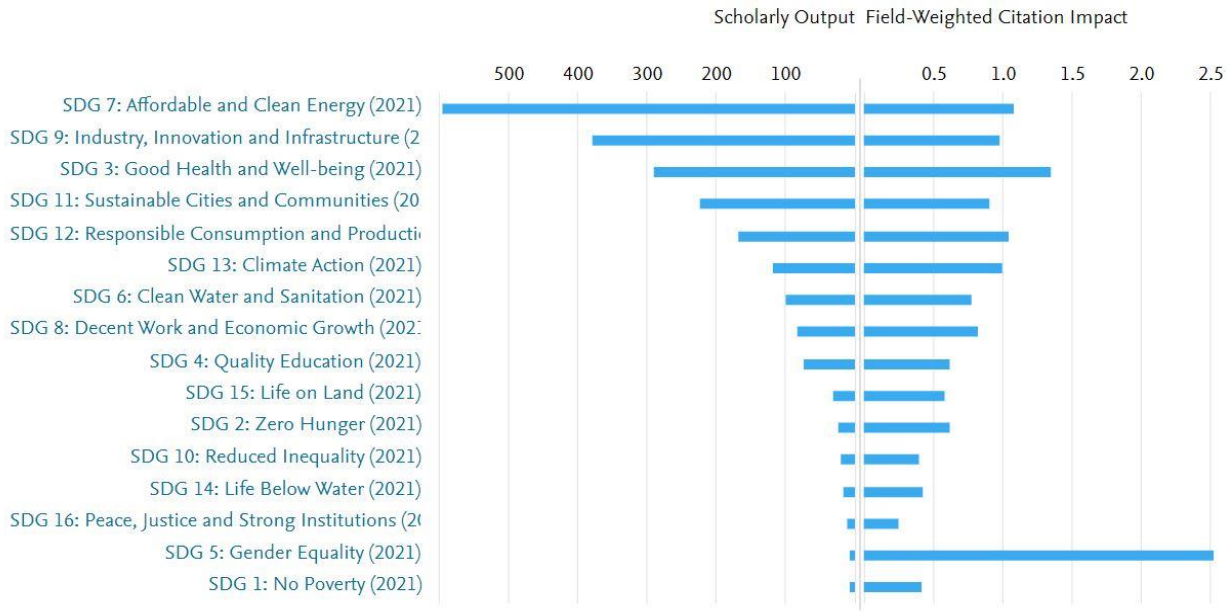


Fig. Scientific production/sustainable development goals (SDG) and impact by citations, with ordering by volume of publications

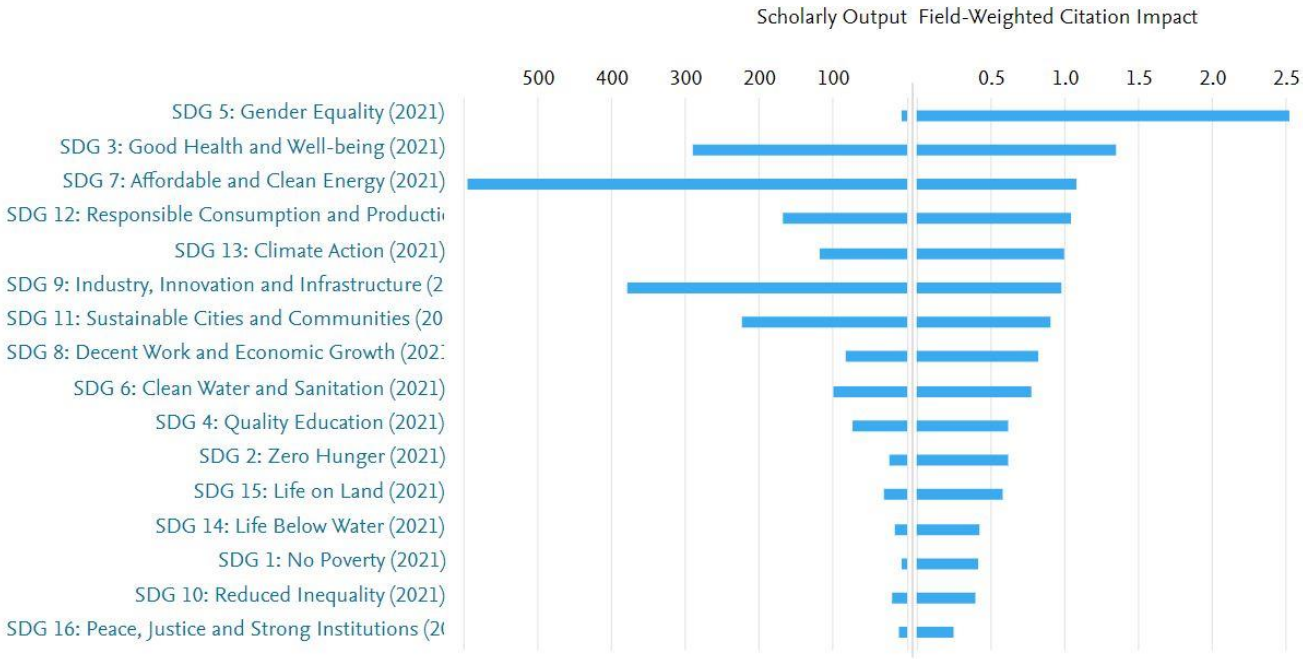


Fig. Scientific production/sustainable development goals (SDG) and impact by citation, with ordering by impact

"Sustainability touches everything, from the way we value and respect each other, which is expressed in policies concerning education, security and wellbeing, to how we measure wealth, value commodities and calculate ecosystem services. So, when something touches so many things, addressing one aspect of sustainability requires addressing many other aspects." (SDG Report, The University of Sidney)