

Croatian Academy of Engineering 2013-2022

President in the mandates 2013-2017 and 2017-2022
Prof. **Vladimir Andročec**, Ph.D.

Abstract

Changes in the Board of the Academy and other bodies continued in 2013, with the integration of scientists from the fields of technology and biotechnology and a stronger focus on cooperation between science and business. In addition, successful collaborations were concluded with other academies and cooperation partners in the field of Academy activities. Even after 2017, active cooperation with Academy members continued, which was particularly evident in the project with the Tehnix Company and individual Academy members. Cooperation with various scientific and business institutions increased the number of supporting members and joint activities, and an economic and regional cooperation committee was established within the Academy. During the Covid-19 pandemic, the number of activities and participation of members in physical form significantly decreased, but the number of applications allowing remote participation increased. However, despite the difficult working conditions, the Academy regularly issued its publications, which were available on the Academy's website as well as in print, and continuously carried out its work activities.

Governing Board of the Academy

2013-2017

The Governing Board of the Academy composed of:

1. Prof. Vladimir Andročec, Ph.D., President
2. Prof. Zdravko Terze, Ph.D., Vice-President
3. Prof. Vladimir Medved, Ph.D., Vice-President
4. Prof. Dubravko Rogale, Ph.D., General Secretary

was elected in 2013 at the 28th Annual Assembly whose mandate started on July 1st 2013 and lasted to June 30th 2017. Prof. Emeritus Stanko Tonković, Ph.D., joined the Governing Board in compliance with the Statute as a Board Member.

Thinking about the future of the Academy as a scientific community and with the intention of acting in order to support its existence, the new Governing Board studied the experiences of other academies and scientific societies in the world and it was concluded that in the new period the Academy should become a work unit that will help individuals and organizations and the society as a whole in:

- systematic preparation for the future;
- acquiring skills of prediction and discussion;
- support and development of innovation culture;
- acquisition and application of knowledge;
- communication with the authorities and with economy; and
- connecting science with industry.



Fig. 1. Governing Board 2013-2017 (Prof. Emeritus Stanko Tonković, Ph.D., Board Member, Prof. Zdravko Terze, Ph.D., Vice-President, Prof. Vladimir Androćec, Ph.D., President, Prof. Vladimir Medved, Ph.D., Vice-President, Prof. Dubravko Rogale, Ph.D., General Secretary)

2017-2022

The Governing Board of the Academy composed of:

1. Prof. Vladimir Androćec, Ph.D., President,
2. Prof. Dubravko Rogale, Ph.D., Vice-President,
3. Prof. Zdravko Terze, Ph.D., Vice-President, and
4. Prof. Emerita Nediljka Gaurina-Međimurec, Ph.D., General Secretary,

was elected in 2017 at the 32nd Annual Assembly whose mandate began on July 1st 2017, adopted a strategic program with the plan of activities and their implementation.

At the same Assembly Prof. Slavko Krajcar, Ph.D., was elected as a Board Member of the HATZ for the mandate 2017-2021.

In May 2018, the Academy marked its 25th anniversary with a series of activities. That year, changes and additions to the Statute and normative acts of the Academy were made. The amended Statute was submitted to the relevant state institutions and published on the HATZ website.



Fig. 2a. Governing Board in mandate 2017-2022 (Prof. Zdravko Terze, Ph.D., Vice-president, Prof. Emerita Nediljka Gaurina-Medimurec, Ph.D., Secretary General, Prof. Vladimir Andročec, Ph.D., President, Prof. Dubravko Rogale, Ph.D., Vice-President, Prof. Slavko Krajcar, Ph.D., Board Member)



Fig. 2b. Governing Board in mandate 2017-2022

In October the same year, Prof. Emerita Nediljka Gaurina-Medimurec, Ph.D., resigned from the duty of the Academy's General Secretary. By the decision of the Assembly made at the 36th electronic session held on February 26th 2019, Prof. Vladimir Mrša, Ph.D., became the new General Secretary of the Academy.



Fig 3. Governing Board in mandate 2017-2022 (Prof. Dubravko Rogale, Ph.D., Vice-President, Prof. Vladimir Androćec, Ph.D., President, Prof. Vladimir Mrša, Ph.D., Secretary General, Prof. Slavko Krajcar, Ph.D., Board Member, Prof. Zdravko Terze, Ph.D., Vice-President)

In June 2021, after the sudden death of Prof. Slavko Krajcar, Ph.D., Prof. Vedran Mornar, Ph.D., was elected as an acting Board Member of the Governing Board by the decision of the Presidency made in the 20th electronic session.



Fig. 4. Governing Board in mandate 2017-2022 (Prof. Vladimir Mrša, Ph.D., Secretary General, Prof. Vedran Mornar, Ph.D., acting Board Member, Prof. Vladimir Androćec, Ph.D., President, Prof. Zdravko Terze, Ph.D., Vice-President, Prof. Dubravko Rogale, Ph.D., Vice-President)

Academy elections were scheduled for 2021, which meant the election of the new Governing Board, Presidency, departments, committees and centres of the HATZ.

Due to the standard restrictions and health protection of Academy members during the corona virus pandemic and the precautions taken to prevent the spread of infection, it was decided at the 41st electronic Assembly to extend the mandate of the HATZ existing administrative bodies until formal conditions are in place to hold larger meetings and allow members of the Academy Assembly to attend meetings and hold elections in person.

On July 1st 2022, the new Governing Board, Presidency, Departments, Committees, Centre, Economic Council and Scientific Council started their work. The 44th solemn assembly held in June was the last in the formation: Prof. Vladimir Andročec, Ph.D. (President), Prof. Dubravko Rogale, Ph.D. (Vice-President), Prof. Zdravko Terze, Ph.D. (Vice-President), Prof. Vladimir Mrša, Ph.D. (General Secretary), and Prof. Vedran Mornar, Ph.D. (acting Board Member).



Fig. 5. Governing Board in mandate 2017-2022 (Prof. Vladimir Mrša, Ph.D., Secretary General, Prof. Vedran Mornar, Ph.D., acting Board Member, Prof. Zdravko Terze, Ph.D., Vice-President, Prof. Vladimir Andročec, Ph.D., President, Prof. Dubravko Rogale, Ph.D., Vice-President)

Academy Membership

Number of members after the 20th anniversary celebration and the 28th HATZ Annual Assembly in May 2013 was:

Members of the Academy	104
Emeriti members of the Academy	65
International members of the Academy	9
Associates of the Academy	78

Honorary members of the Academy	8
Amici members of the Academy	15
<u>Supporting members of the Academy</u>	<u>49</u>
IN TOTAL	328

Number of members after the 5th (electronic) session of the Presidency (outside of the session) in April 2018 was:

Members of the Academy	102
Emeriti members of the Academy	85
International members of the Academy	13
Associates of the Academy	66
Honorary members of the Academy	10
<u>Supporting members of the Academy</u>	<u>62</u>
IN TOTAL	338

Number of members after the 44th HATZ Annual Assembly in June 2022 was as follows:

Members of the Academy	98
Emeriti members of the Academy	86
International members of the Academy	19
Associates of the Academy	74
Honorary members of the Academy	8
Entrepreneur members	9
<u>Supporting members of the Academy</u>	<u>64</u>
IN TOTAL	358

Between 2013 and 2022 the Academy held 9 internal calls to elect new emeriti members of the Academy, 5 public calls to elect new associates, international and honorary members, 4 internal calls to elect new (regular) members of the Academy, 2 internal calls to elect new leadership and members of Departments, Committees, Centres and the Scientific Council and 2 internal calls to elect the new Governing Board of the Academy.

The Academy's small membership has changed over the years for a number of reasons:

- A number of members had their membership terminated due to non-fulfilment of membership obligations;
- According to the Statute (members who have not advanced from associate member status to regular member status by the age of 70);
- Members who resigned from the Academy at their own request due to the impossibility of active participation in the work of the Academy.

These procedures lead to the initiation of the proceedings for the dismissal of members of the Academy.

Over the years, the Academy's Governing Board has attracted members from numerous successful and prominent business entities, as well as scientific institutions, thereby increasing the number of supporting members. Currently, the Academy has 64 supporting members in its membership.

As the Academy is a non-profit organization, the contributions of its members are extremely important. With their membership fee and cooperation, the members support the Academy in carrying out the plans and activities of the Academy that are in the interest of the scientific, technological and economic development of our country.

The activities of the Academy in recent years have made a significant contribution to the development of technical and biotechnological sciences, and the names of its supporting members are always in the foreground.

The activities of the Academy

From 2013 to 2017 the Governing Board of the Academy held 90 sessions, the Presidency held 17 sessions, 4 plenary sessions of the Assembly, and 5 electronic sessions of the Assembly were held.

From 2017 to 2022 the Governing Board of the Academy held 88 sessions, the Presidency held 23 sessions, 2 plenary session and 9 electronic sessions of the Assembly outside the session were held.

Departments, committees, centres and councils held their sessions regularly according to the planned work program.

The work of the Academy has been recognized by many national and international institutions, numerous requests for cooperation and sponsorship, invitations to organize and co-organize meetings, participation of HATZ representatives and members at meetings and meetings of public interest; it is understandable that the number of invitations to sponsorships and partnerships has declined significantly during the pandemic. The spread of the coronavirus has reduced the number of conferences with physical attendance by delegates. Meetings were mostly held in the form of virtual conferences and meetings.



Fig. 6. Webinar Hydrogen in Energy Transition, online, March 4th, 2021



Fig. 7. Conference Printing & Design, online, June 4th, 2020

During the mandate years 2013-2017 and 2017-2022, the Academy received more than 200 applications for patronage, more than 400 invitations to participate in events of public interest, and co-hosted or organized more than 80 events.



Fig. 8. Conference “Buildings 3+, safety, comfort, quality”, February 17th - 18th, 2022



Fig. 9. MIPRO 2022 Conference, May 27th, 2022



Fig. 10. Conference “Cementary days“ and „Climate and clean water“

Department secretaries, committee chairmen, heads of centres and council presidents played a major role in organizing events and connecting institutions.

The creation and installation of a bust of Prof. Vatroslav Lopašić, Ph.D., in 2016, can be mentioned as part of the Academy’s activities. Prof. Vatroslav Lopašić, Ph.D., the late Honorary Member of the Croatian Academy of Engineering, was an outstanding Croatian physicist – a classic of the Croatian physics, scientist, expert and university teacher, who had educated many generations of young engineers and made an immeasurable contribution in terms of establishing scientific institutions and studies as well as promoting and developing studies of natural and technical sciences in Croatia.



Fig. 11a and 11b. Installation of the bust of Prof. Vatroslav Lopašić, Ph.D., October 17th, 2016

On May 21st, 2018 the 35th solemn annual Assembly took place on the occasion of the 25th Anniversary of the Academy's establishment and activities. For this purpose, a special edition of Annual was published.



Fig. 12. The 35th HATZ Assembly, May 21st, 2018

In May, 2018, the Academy unveiled a bust of Prof. Juraj Božičević, Ph.D., one of the founders of the Croatian Academy of Engineering and second president for two mandates (1997-2001 and 2001-2003), on the occasion of its 25th anniversary.



Fig. 13a and 13b. Installing the bust of Prof. Juraj Božičević, Ph.D., May 7th, 2018

On June 6th, 2022, the 44th regular annual Assembly of the Croatian Academy of Engineering was held in Zagreb. Members of the Academy and high-ranking visitors from science and business attended the meeting. On this occasion, the diplomas were presented to the new full and emeritus members of the Academy, as well as the diplomas to the winners of the Academy Awards for 2021, who had previously been confirmed by the Presidency and the Assembly of the Academy. Over the years, communication with the members has also changed significantly. A new website was created, which is a kind of mirror of the Academy. The most important activities of the Academy and its members are published on the website. We followed the successes and achievements of the members, published information about conferences and workshops that have already been held, as well as much other information. There was daily communication with the members. The activities of the Academy and Academy members are published on the HATZ website and regularly sent to Academy members by electronic mail.

Very often, the Board and members of the Academy promoted the activities and name of the Academy in the media and participated as speakers at various events, always emphasizing their affiliation with the Academy.



Fig. 14. In February 2021, an interview with Prof. Vladimir Andročec, Ph.D. was published on the YouTube channel of the B media portal



Fig. 15. Participation of Prof. Vladimir Androćec, Ph.D., in the RTL Danas show, July 2020

Cooperation between HATZ and other institutions

Between 2013 and 2022 the Croatian Academy signed several contracts with cooperating institution in Croatia and abroad.

– HAZU

The Academy's cooperation with the Croatian Academy of Arts and Sciences (HAZU) was particularly fruitful, and in July 2014 a cooperation agreement was signed with the Croatian Academy of Arts and Sciences. HATZ members were elected as HAZU members.

– HAZU, LZMK

Recognizing the importance of preserving cultural and technical heritage, the Croatian Academy of Engineering, the Miroslav Krleža Institute of Lexicography, and HAZU concluded/signed the Tripartite Cooperation Protocol on the crucial project «Croatian Technical Encyclopaedia» in October 2014. The first two volumes of the Encyclopaedia were published as a consequence of the preceding years intensive effort on the project. A number of Academy members have been especially involved in these projects.

– AMZH, APZH, AŠZH

The Academy also achieves excellent cooperation with the relevant professional academies of the Republic of Croatia: the Croatian Academy of Medical Sciences, the Croatian Academy of Legal Sciences and the Academy of Forestry Sciences.

In 2012, a quadrilateral cooperation agreement was signed by these four sister academies, and in 2016, as well as in previous years, a number of successful joint activities and projects, meetings, forums, and seminars were implemented for the four Academies 'Modern Technologies: Ethics of Use and Legal Regulation' should be particularly mentioned. It was initiated by the Croatian Academy of Medical Sciences and held on March 17th, 2017 at the Croatian Medical Association in Zagreb.

Four academies cooperate through the Council and Coordination of the Academies as their joint coordinating bodies.

– IAS

In September 2017 the Engineering Academy of Slovenia (IAS) and HATZ signed a Cooperation Agreement between countries in the field of engineering and technical sciences. Within the framework of their resources, both parties will maintain friendly contacts and promote mutual cooperation between scientists and engineers.



Fig. 16a and 16b. Signing of the Cooperation agreement between IAS and HATZ, September 28th, 2017

– MIPRO

In December 2017, representatives from the Croatian Academy of Engineering and MIPRO Croatia - the Croatian Association for Information and Communication Technology, Electronics and Microelectronics met in Zagreb to discuss future cooperation and the signing of a mutual support membership agreement.



Fig.17. Signing of Agreement between MIPRO and HATZ, December 6th, 2017

– HAZU BIH

In October 2018, the Croatian Academy of Science and Art in Bosnia and Herzegovina (HAZU BIH) and HATZ signed an Agreement on the establishment and development of cooperation in technical and biotechnical sciences based on the concept of mutual interest.



Fig. 18a and 18b. Signing of Agreement on the establishment and development of cooperation between HAZU BIH and HATZ, October 8th, 2018

– EPTS Foundation

In February 2019, European Platform of Transport Science (EPTS Foundation) and HATZ agreed to encourage cooperation among the both sides in the field of engineering and technical science for mutual benefit and signed the Agreement of Cooperation. Both sides will use the expertise of their members to formulate common strategic policy guidelines in the area of mutual interest, which will assist both institutions to promote social and economic development and address global challenges in the future.



Fig. 19a and 19b. Signing of Agreement of Cooperation between EPTS Foundation and HATZ, February 13th, 2019

– HIS

A contract for collaborative research and professional development was signed by HATZ and the Croatian Association of Engineers (HIS) in December 2013. The highly effective collaboration led to the development of the Engineer’s Day Celebration in the Republic of Croatia, which these two organizations have been co-ordinating since 2015. Zagreb hosted the 9th Engineer’s Day Celebration in March 2023.



Fig. 20. Engineer’s Day of the Republic of Croatia, March 2015



Fig. 21. Engineer’s Day of the Republic of Croatia, March 2016



Fig. 22. Engineer’s Day of the Republic of Croatia, March 2017



Fig. 23. Engineer’s Day of the Republic of Croatia, March 2018



Fig. 24. Engineer’s Day of the Republic of Croatia, March 2019



Fig. 25. Engineer’s Day of the Republic of Croatia, March 2020



Fig. 26. Engineer's Day of the Republic of Croatia, March 2021



Fig. 27. Engineer's Day of the Republic of Croatia, March 2022

Cooperation with the Economy

Considering the engineering background of the Academy, one of our goals is cooperation with the economy, and within the framework of the Academy a Committee for cooperation with the economy and regional cooperation was established in 2018 that has lately promoted and implemented various forms of cooperation. It is especially pleasant that the number of supporting members of the Academy from the business world is increasing significantly, especially well-known and technologically advanced companies with which we cooperate in the development of new technologies. In 2013, there were 49 members, and in 2022 – 64 supporting members.

In 2018, it became necessary to include representatives of large companies supporting the work of the Academy as members of the Academy, and to form a business council among entrepreneurs. Thus, the connection between the Academy and the business community has deepened.



Fig. 28. HATZ Economic Council Meeting, held in Tehnix d.o.o., Donji Kraljevec



Fig. 29. HATZ Economic Council Meeting, March 2019

Realizing that a completely new technological revolution called Industry 4.0 is taking place that will significantly change the world in the near future, especially in the area of IT technology and robotization, we decided to connect the reality of the Academy more closely and involve it in business development. Therefore, in 2018, the new Statute introduced a special institution of membership – Entrepreneurial members and Economic Council. Entrepreneurial members are elected on the basis of the criterion of a significant contribution to our economy and its development, and the Entrepreneurial Council made up of Entrepreneurial members acts as an advisory body to the Academy and encourages the members of the Academy to cooperate with the economy on joint development projects.

The activities of the Academy include connecting excellent scientists and professional potential in the field of technical and biotechnical sciences and cooperation with the economy. Thus was born one of the highly successful three-year collaborations of the IRI project “Development of the TEHNIX plant for bioreactor composting of biodegradable municipal waste”, in which distinguished members of the Academy participated.

Cooperation with the Ministry of Science and Education of the Republic of Croatia and definition of the legal status of the Academy

The Academy wants to offer its scientific and professional potential, as well as international contacts to the state institutions of the Republic of Croatia, especially in the creation and implementation of projects, as well as attracting more funds to Croatia from EU funds. Since the Academy can thus contribute far more not only to stronger positioning and financial stability, but also to the Budget of the Republic of Croatia -

from which it is minimally financed through the Ministry of Science and Education, exclusively for a specific purpose using public calls for co-financing the work of associations, publication of scientific books, organization of conferences and applying for membership fees in international scientific organizations. Over the past period, we have undertaken very intensive activities with the aim of further legal regulation of the academic status of the Academy and the re-accreditation carried out by the Agency for Science and Higher Education.

The result of these joint efforts is promising, and we expect the announced legal regulation of the scientific status of our Academy and other vocational academies: Croatian Academy of Legal Sciences, Croatian Academy of Medical Sciences and Academy of Forestry Sciences.

Publications

In 2013-2022 the Academy continued to publish its most successful publication, the HATZ Annual, with many Academy members contributing their work.

During this nine-year period, the Academy published:

1. Annuals

- 2014 – Jubilee Monograph on the occasion of the 20th Anniversary of the HATZ including ‘Who is Who in the Croatian Academy of Engineering – written in English
- 2016 – Annual 2015 of the Croatian Academy of Engineering – written in Croatian
- 2017 – Annual 2016 of the Croatian Academy of Engineering – written in Croatian
- 2018 - Jubilee Annual on the occasion of the 25th anniversary of the Academy, with the latest section ‘Who is Who in the Croatian Academy of Engineering – written in English
- 2019 – Annual 2018 – “Innovations and patents of HATZ members” – written in Croatian
- 2020 – Annual 2019 – “Croatian technical and industrial heritage” – written in Croatian
- 2021 – Annual 2020 – “Projects of cooperation between members of the Academy and the economy - new products, services and improvements of economic interest” – written in Croatian
- 2022 – Annual 2021 – “Contribution of members of the Academy to the development of the system of scientific and teaching institutions” – written in Croatian

- The editors, Prof. Dubravko Rogale, Ph.D., and Prof. Vladimir Mrša, Ph.D., contributed significantly to the development of these Annuals. Together with the authors of the works published in the publication the editors made their efforts, responded to invitations and participated in the production of the Annuals.



Fig. 30. Covers of individual editions of the HATZ Annuals

2. Technical Science /Engineering Power

Academy members participated as guest editors of the HATZ Bulletin called “Engineering Power”, which continues to be published quarterly in English since 2017, and is distributed to many addresses of collaborating institutions in Croatia and around the world. Until 2017, the Academy published a publication in the Croatian language called “Tehničke znanosti”.



Fig. 31. Covers of individual editions of the HATZ bulletin Engineering Power

3. Books/Monographs

In February 2018, a contract was signed for the publication of the monograph “Faust Vrančić - Life and Inventions” by Prof. Gojko Nikolić, Ph.D. - the third expanded and revised edition. In previous years, the Academy was also involved as co-publisher of monographs on Faust Vrančić, first and second editions (2015 and 2016).

In 2021, the fourth edition of Prof. Gojko Nikolić, Ph.D. book “Truths and misconceptions about Faust Vrančić and his inventions” was published with the sponsorship and co-publishing of HATZ.



Fig. 32. Contract on the publication of the monograph by Prof. Gojko Nikolić, Ph.D., “Faust Vrančić - Life and inventions” (3rd expanded and revised edition)

In 2014, HATZ recognized the importance of cooperation with the Miroslav Krleža Institute of Lexicography and HAZU and signed a cooperation protocol to create the Croatian Technical Encyclopaedia (HTE).

A large number of HATZ members participated in the creation of the Encyclopaedia. The HTE print edition consists of four volumes, each covering a circular thematic unit that corresponds to the broader areas of the online edition. The volumes will be completed and printed at regular intervals adapted to the dynamics of the modern era. The final volume will include general technical terms common to all professions, a general presentation of the development of technology in certain Croatian cities and time periods, and an index of terms. HTE is a project focusing on the history and development of technology in today’s Croatia, from prehistory to the present day, including current state and achievements.

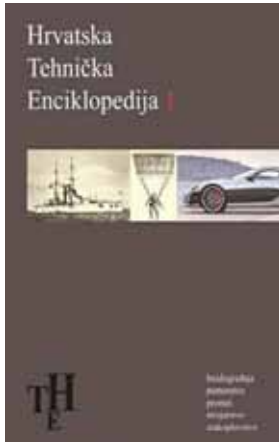


Fig. 33. Presentation of the 1st volume of the Croatian Technical Encyclopaedia, December 2018



Fig. 34. Presentation of the 2nd volume of the Croatian Technical Encyclopaedia, July 2022

The Academy also published:

- 2017, the Book of Abstracts of the Round Table Discussion of the Academy “Status and Future of Technological and Biotechnological Sciences in Croatia in the 21st Century”;
- 2017, Book of abstracts of the Scientific and Professional Meeting “Application of Mathematical Modelling and Numerical Simulations in the Chemical Process Industry”;
- 2022, „Food, nutrition and environment: Position in Central European space“.

International Activities (CAETS, Euro-CASE, SAPEA)

In order to work on its development and progress, the Academy became an equal member of CAETS, the International Council of Academies of Technical Sciences and Engineering based in Washington, DC, USA, in 2000, a member of Euro-CASE, the European council of academies of applied sciences, technologies and technical sciences based in Paris, France, in 2005, and in 2009 it was recognized as a scientific organization in the system of the Ministry of Science, Education and Sports of the Republic of Croatia. It is important to highlight the participation of HATZ members in Euro-CASE projects. One of the most significant activities was the participation of Prof. Vladimir Mrša, Ph.D., in the working group of the project “Challenges for Science and Technology in the Post-COVID Period - Challenges for European Science and Technology driven innovation in Europe” in 2020.

The Academy has been actively involved in the field of international cooperation, especially by joining CAETS and Euro-CASE organizations as members and regularly participating in online conferences. As the current President of the Academy I was also a Board Member of CAETS and Euro-CASE. Based on the highly successful cooperation with these two organizations, the Academy has been awarded the option to organize annual conferences: the Euro-CASE Annual Conference in 2020 and the CAETS Annual Conference in 2023.

On December 13, 2016, the important European SAPEA project was officially launched, which was signed by the European Commission with all the academic associations of the European Union, and in which HATZ participates through its membership of Euro-CASE. SAPEA is a working group that brings together scientists from the fields of technical, medical, humanities and natural sciences who share their latest reports and findings with scientists from many countries. Members of our Academy regularly participate in report writing. There are two notable projects that HATZ members have been involved in:

- 2018, Novel carbon and utilisation technologies Evidence Review Report, Prof. Neven Duić, Ph.D.;
- 2020, Sustainable food system for the European Union, Prof. Verica Dragović-Uzelac, Ph.D.

The Croatian Academy of Engineering (HATZ), as a long-standing member of Euro-CASE, hosted the annual international scientific and professional conference Euro-CASE 2020 entitled “Dealing with Challenges of the European Energy Transition” on November 20th, 2020.



Fig. 35. Cover page of reports “Novel carbon and utilisation technologies Evidence” and “Sustainable food system for the European Union”

The Euro-CASE 2020 Annual Conference, originally scheduled for June 2020, was rescheduled for November 2020 due to the coronavirus situation in Croatia and worldwide. In order to avoid social contacts, the conference was held on November 20th, 2020 using Zoom application with technical support from the Euro-CASE. The conference drew 170 registered attendees, exceeding the expectations of the Academy Management and the Programme-Organising Committee. The meeting was attended by the presidents or deputies of 21 of the 23 national academies that comprise Euro-CASE. The Euro-CASE board meeting took place as part of the conference.



Fig. 36. Visual identity of conference “Euro-CASE 2020”



Fig. 37a and 37b. Printscreens of conference Euro-CASE 2020

As a member of the CAETS Board, I actively worked to improve cooperation and recognition of the Academy in the international environment. The Academy was given the honour of hosting the 2023 conference.

In October 2023, the Croatian Academy of Engineering will host the CAETS 2023 annual conference. We will combine this event with our 30th anniversary celebration and I am confident that the new management will be successful. The conference will bring together representatives of CAETS member Academies in Zagreb.

In addition to participating in the SAPEA project, in the next mandate the Governing Board of the Academy will directly encourage members to apply for projects funded by the EU Research Funds. In this context, it will - in cooperation with other relevant

institutions such as Agency for Mobility, Croatian Academy of Sciences and Arts, Croatian Chamber of Economy and similar institutions – support the organization of information workshops of individual EU programs and inform members about the details of their implementation. By networking all participants in the process the absorption of EU funds will be improved, and the activities accompanying the work of the Academy - such as timely finding suitable partners for specific project ideas - will provide additional support to project teams, especially for research at an interdisciplinary level. Also, through contacts within relevant international organizations attempts will be made to influence the formation of the future direction of research funded by EU programs in the coming period, which may align with the priorities of the Croatian research community. Likewise, linking local research institutions with local authorities in order to successfully implement new technologies in everyday social practice (e.g. development of earthquake protection programmes and other disaster protection programmes, use of satellite images for civilian purposes, development of related software support, improvement of traffic connections, security and signaling, etc.) will be stimulated.

Awards and Recognitions of the Academy 2013-2018

At annual Assemblies of the Academy in the period from 2013 to 2022, a total of 8 HATZ Lifetime Achievement Awards ‘The Power of Knowledge’, 19 Rikard Podhorsky Annual Awards, 35 Vera Johanides awards for prominent young scientists from the science system were granted and 6 Vera Johanides Awards for Successful Young Scientists from the Business Sector.

All winners will be posted on the Academy website. We actively participated in the announcement of award tenders, especially encouraging young scientists to apply.

Programme Guidelines of the Governing Board of the Croatian Academy of Engineering

2013-2017

Based on the results achieved so far, partially renewed Governing Board of the Academy (consisting of Prof. Vladimir Andročec, Ph.D., President of the Academy, Prof. Zdravko Terze, Ph.D., Vice-President, Prof. Dubravko Rogale, Ph.D., Vice-President, Prof. Emerita Nediljka Gaurina-Medimurec, Ph.D., General-Secretary, Prof. Slavko Krajcar, Ph.D., 5th member) continued its work, building on the good results and the activities, and in this sense it prepared an ambitious program for the new mandate period.

In the period of a prolonged general crisis in Croatia, the previous and future tasks were extremely difficult to complete without the state institutions and business community acknowledging the significance of the Croatian Academy of Engineering, and they could only be completed on the basis of the actual accomplishments of all Academy members and their participation in the Academy's governing bodies as well as the Croatian public.

The previous Governing Board initiated several activities that significantly increased the level of membership activity, and by applying several new elements to membership mobilization, it planned to increase overall membership mobilization. The benefits were reflected in the following points:

- More useful information is sent by email to the membership of the Academy, which will continue with the positive feedback from the members
- The Academy's updated websites provide members with additional information that they may use to respond, and this can only be increased by continually upgrading the website content.
- Regular publications of Annuals and HATZ Bulletins Engineering Power / Tehničke znanosti allows members to get their works published. The Governing Board plans to publish a series of thematic issues which will be edited by members of individual Departments. Additionally, this will motivate the participants to publicize their upcoming activities.
- In order to increase the financial discipline in the payment of personal membership fees in this mandate, we removed twenty members from the membership list who had not paid the membership fee for more than three years. It was proposed that members who did not pay their membership fee for more than one year are removed from the membership list to create place for active members who demonstrate their commitment to the Academy.
- By restricting the number of roles and mandates in the Academy normatively, the opportunities for members in all bodies of the Academy are extended, allowing a greater number of members interested in serving in the Academy to be granted these chances.

In the next mandate the Governing Board must:

- monitor the work of individual departments and their responsibility to organize conferences with greatest care, and this activity will increase the mobilization of membership for work in the Academy, the Departments and particular professions
- organize the Open Door Day of the Department during which the Department will be able to present its professional and scientific activities and achieve-

ments. Members of the other Departments who are interested in interdisciplinary activities might learn about the capabilities of others in this way.

- pay great attention to our members' actions during status advancement and on occasions of giving Academy awards, as inspired by this Governing Board by changing normative acts and analysing the membership's contributions,
- organize the presentation of distinguished scientists from different Departments where they will present their science and research work, laboratory and instrumentation potentials and achievements by discussing possible forms of cooperation with other members of the Academy,
- motivate the members that the establishment and the work of the Centres can help them in achieving their professional and scientific activities, organization of symposia and the like using the infrastructure of the Academy,
- encourage calls for proposals and implementation of domestic and European projects by the Academy for interested members of the Academy.

2017-2022

Thanks to the dedicated work of the previous administrations, the Academy has acquired a great social reputation. However, we felt that there is plenty of room for improvement. We believe that after decades of ignoring the importance of production and industry, the Republic of Croatia is increasingly aware that the future of the country cannot depend solely on tourism and trade, and that we can only achieve improvements by increasing investment in production. By manufacturing, we understand production and remanufacturing as essentially high-tech activities, where the products are not only physical, but also know-how, patents, energy or software. The COVID epidemic, which is still ongoing, demonstrated that high-tech enterprises were by far the most robust, achieving growth even through the most challenging circumstances for the economy. This is where we envision the Academy playing an essential role.

- Although the Academy as an institution is recognized nationally among businessmen, scientists and engineers through the activities carried out by its bodies, we believe that these activities should be promoted more intensively through social networks as one of the simplest ways to access a wider circle of external stakeholders, as well as the membership itself. At the same time, greater emphasis should be placed on providing opinions and taking a clear position on current technical issues, such as the current (long-term) issue of gas supply to the market from alternative sources, oil derivative prices, food prices, supply chain disruptions, etc.
- Increasing the visibility of the Engineering Power Bulletin should be one of the main areas of activity, which will bring additional awareness to the Academy. In addition to changing the working model of the Editorial Board

to ensure publication continuity, the next phase should focus on integrating journals into relevant databases, primarily DOAJ (Directory of Open Access Journals) and then SCOPUS. As one of the measures to increase the availability of works to a wider circle of readers, the introduction of DOI (Digital Object Identifier) for each published work should be considered.

- Academy members and associates should be encouraged to continue working with the Institute of Lexicography and HAZU in the 3rd and 4th volumes of the Technical Encyclopaedia. As it is almost the most important publishing activity of the Academy, members and associates of the Academy should be actively involved in it, paying attention not only to deadlines, but also to the quality of the articles that will be found in the Technical Encyclopaedia.
- The Statute of the Academy and other associated papers that govern its operations should be updated on a regular basis in order to react to changes in current rules while also improving the legal foundation for day-to-day operations.
- The Academy, as an institution uniting the most prominent Croatian scientists in the field of technical and biotechnical sciences, must be actively involved in the preparation of national strategic documents that are important for the development of the engineering profession and the development of the Croatian economy and society. The results and the importance of the engineering profession and the STEM field are not sufficiently appreciated in the documents.

The Academy should take a more active role in the formation of the national legislative framework in its sphere of activity, and its members should engage in public discussions when new laws are passed. At the same time, the opinion of the Academy as an institution should be clearly expressed.

- Special attention will be paid to the organization of events related to the celebration of the Academy's 30th anniversary, and together with the solemn meeting of the Academy as the central event, several events should be organized for this anniversary. The solemn anniversary should certainly be accompanied by an appropriate topic that will be covered in the Academy's Yearbook, as well as gatherings and work tables in which the role and importance of the Academy will continue to be promoted among scientists and businessmen whose field of activity is primarily oriented towards technical and biotechnical sciences. The main event to further promote the Academy's 30th anniversary internationally is of course the organization of the CAETS 2023 Annual Conference.
- In addition to the mentioned activities, cooperation with HAZU and other national Academies should definitely be continued. Cooperation with HAZU should be continued through other similar projects and the organisation of

joint events, in addition to existing projects such as the production of the Croatian Technical Encyclopaedia, in which many Academy members are involved. The coordination of the national academies, the Croatian Academy of Medical Sciences, the Croatian Academy of Legal Sciences and the Croatian Academy of Forestry Sciences, as well as the work of the Council, which was instigated by our Academy, should be further strengthened, especially to resolve common status issues, but also through the implementation of various joint dissemination activities.

- The continuation and promotion of cooperation with technical academies in the area, whether through joint working meetings, organizing various events, or creating joint announcements/statements on current technical profession topics, will undoubtedly contribute to the Academy's international recognition and influence. At the same time, special attention should be paid continuing activities to explore the possibility of establishing academies of technical sciences in the countries of South-Eastern Europe, in line with the policy initiated and promoted by CAETS.
- The greatest strength of the Academy is its multinational membership. In addition to increasing the number of Academy members worldwide, special attention will be paid to their more active participation in the Academy's activities, such as publishing articles in the Academy's newsletter or holding (virtual) lectures and seminars.
- The Academy's strong participation in international organisations will undoubtedly continue, especially through Euro-CASE and CAETS, but also through bilateral collaboration with other academies. To this end, the Academy should promote the participation of its prominent members in the international bodies of Euro-CASE and CAETS, as well as in the professional and scientific activities coordinated by the Academy's international partners. Using the work of the Euro-CASE and CAETS committees, members of the Academy should actively participate in the creation of priority topics that should be popularized and brought to the attention of the public. The main event that will further increase the Academy's participation in international associations is the CAETS 2023 annual conference, which is already being organized.
- It should be noted that Prof. Neven Duić, Ph.D., candidate for the position of Vice-President of the Academy, was elected Chair of the Organising and Programme Committee of the CAETS Conference 2023. The organization of the conference should be used to strengthen the position of HATZ in the global environment by contacting other participants during the organization and implementation of the conference.
- Academy members should be encouraged to participate in Euro-CASE and SAPEA working groups. Members of the Academy have engaged in two

working groups to produce guidelines and recommendations during the last two years, one in the sector of food production and agriculture and the other in the field of higher engineering education. Participation in working groups improves the Academy's importance in the worldwide community, among other reasons.

- Strengthening the activities of the Academy in the national regional university centres (Osijek, Rijeka and Split) can contribute to the mobilization of members by organizing meetings of the Management Board and the Presidency. Informal discussions with members revealed that they would like to get more involved, but that travelling to Zagreb was an obstacle for them. For this reason, the regional distribution of activities related to the organization of round tables, workshops and meetings organised by the Academy should be promoted. Greater involvement of members in the activities of the Academy should also be ensured by, for example, changing the conditions for promotion from associate status to member status, where as a mandatory condition for promotion, some activity related to the Academy should be introduced, such as the publication of papers in the Yearbook or Engineering Power Bulletin or active participation in the organization of a round table in the name and on behalf of the Academy, etc.
- Scientists working in the business community are very interested in becoming members of the Academy. Due to the nature of their work, they don't have much time to write scientific papers, but we consider major business breakthroughs as important as journal publications. Their greater involvement in the work of the Academy would, among other things, increase the possibility of working on joint projects. We would therefore proceed with an evaluation of the criteria for selecting members in order to better recognize significant industrial achievements.
- A significant part of the Academy's income comes from the membership fees of the supporting members. Attracting new supporting members will increase the sources of funding for the regular activities of the Academy, while also creating new opportunities for joint projects. At the same time, a model should be developed in which potential group members will recognize their interest, because without this, it is unlikely that any company will make a significant contribution today.
- An activity that should definitely continue to be maintained in the future is the celebration of Engineers' Day. This ongoing cooperation with the Croatian Engineering Association provides an opportunity to address more scientists and engineers, as well as HIS members from the business world, where carefully selected topics for Engineers' Day can have a significant impact on the wider field, and the Academy can focus more strictly on current affairs related to technical professions.

- The great strength of the Academy is in its multidisciplinary membership. This allows the Academy to continue its activities related to the involvement of Academy members and associates in the implementation of projects with the business community, which is funded by European funds and where the Academy acts as a sponsor of activities through its centres. The completion of such projects permits the Academy's appropriate financial operations and is the Academy's primary source of income, in addition to membership fees. Therefore, it is necessary to intensify work on the realization of these activities. In this regard, it is necessary to step up efforts to implement these measures. As mentioned earlier, the Future Academy's Technology Transfer Centre should continue to implement cooperative initiatives with the business sector.

Both plans of the Governing Board were substantially fulfilled.

Finance

The financial structure of the Croatian Academy of Engineering has been stable in recent years, allowing the Academy to fulfil its function in the system of scientific institutions of the Republic of Croatia and especially all of the tasks outlined in the work plan.

The total assets of the Academy in 2013 were HRK 516.665,35 (EUR 68.573,30). The financial situation of the Academy recorded a growth trend from year to year. The positive financial situation was aided by an increase in the number of supporting members who regularly fulfil their membership requirements and prudent financial management.

The Academy's financial situation improved in 2021, when total income reached HRK 1.149.919,93 (approximately EUR 152.620,60) due to payments related to the IRI project Development of the Tehnix plant for bioreactor composting of biodegradable municipal waste, which was carried out through the Centre for Development Studies and Projects.

The Academy annually participated in the tenders announced by the Ministry of Science and Education of the Republic of Croatia and used its right to provide financial support to the Association's activities by issuing publications and paying worldwide membership fees.

FINANCIAL STATUS OF THE ACADEMY AS OF THE DATE: DECEMBER 31	AMOUNT (currency: KUNA)	AMOUNT (currency: EURO)
2013	514.160,13	68.240,78
2014	516.907,42	68.605,40
2015	587.446,14	77.967,50
2016	625.210,55	82.979,70
2017	810.706,01	107.599,18
2018	788.881,61	104.702,58
2019	794.701,80	105.475,05
2020	961.188,34	127.571,62
2021	1.149.919,93	152.620,60
2022 (June 2022)	925.650,45	122.854,93

Table 1. Financial status of the Academy between 2013 and June 2022