



FOUNDATION FOR THE SUPPORT
OF EDUCATION AT THE AVIATION
VALLEY ASSOCIATION



2021

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INTRODUCTION

Establishment of the Foundation for the Support of Education at the “Aviation Valley Association” took place as a result of long-term cooperation and initiatives jointly undertaken by universities and enterprises associated in the Aviation Valley. The main reason for the establishment of the Foundation was the unflagging interest of children and young people from the entire Podkarpackie province in educational programs such as “Super Cool Physics”, “Suggestion” or “Children’s Technical University”. Thanks to the involvement of representatives of various backgrounds - business people, teachers, researchers, students and pupils, it was possible to broaden and expand the offer of these programs in such a way that it would meet the expectations of their recipients and at the same time make the best use of the growing opportunities of industry and science.

The founder of the Foundation for the Support of Education at the “Aviation Valley Association” is the Association of the Group of Aviation Industry Entrepreneurs “Aviation Valley”. Since its establishment, it has been pursuing the objectives set out in the statutes, conducting educational and scientific activities in the field of:

- popularizing science and education. Developing interest in science as an area of attractive exploration and experience;
- raising the level of education of children and young people, especially from rural areas, urban and rural areas and small towns. Creating and equalizing educational opportunities, development opportunities and self-fulfillment;
- increasing the importance of the role of science and education in the consciousness of inhabitants of rural areas, urban and rural areas and small towns as a factor of the development of society and the growth of the quality of life, and showing and promoting the benefits of knowledge and education;
- promoting the idea of lifelong learning.

The Mayor of the City of Rzeszów and the Marshal of the Podkarpackie province took the honorary patronage of the Foundation’s activities. The Foundation also cooperates with the Board of Education in Rzeszów, which ensures that the offer addressed to students is adapted to the curriculum and that it reaches the places where there is a special need for such activities.

The Foundation implements activities at all levels of education, from primary school to secondary school, as well as for adults, such as postgraduate studies for teachers of vocational subjects implemented jointly with the Rzeszów University of Technology.

Foundation “in a nutshell”

Foundation for the Support of Education at the “Aviation Valley Association” was established in order to create new development opportunities for children and young people by organizing a specially prepared, interactive classes and scientific demonstrations. The Foundation has set itself the goal of proving to young people that science does not have to be boring and can give a lot of satisfaction, and its mission is to develop their interests and encourage them to explore the world, so that the “adventure” with science would bring benefits in their future professional lives. The Foundation pursues its goals through projects involving free classes for children and young people, as well as popular science events. Until February 2018, the Foundation was the organizer of popular science classes called the “Children’s University of Technology”, which originated in Rzeszów. In the following years, the project opened its branches in Mielec, Dębica, Ustrzyki Dolne and Stalowa Wola. As of March 2018, as a result of establishing cooperation with the University of Rzeszów, the Foundation launched a new project for children called the “Children’s Technical University” implemented, similarly to the previous one, in Rzeszów, Mielec, Dębica, Ustrzyki Dolne, Stalowa Wola and, since 2020, also in Jasło. The number of participants in these popular science lectures was over 21,700 individuals. In addition to lectures conducted in Rzeszów and the Branches, the Foundation for the Support of Education at the “Aviation Valley Association” also conducts classes and scientific demonstrations as part of other educational projects. The demonstrations of the Children’s Technical University are presented at primary schools, mainly in rural areas throughout the entire Podkarpackie region. To date, over 8,700 children have been covered by the project. Educational programs such as Super Cool Physics or Suggestion have been designed for secondary school students, from which over 16.5 thousand young people have already benefited.

The Foundation is also the organizer of the Festival of Science, which takes place every two years and brings together a huge number of participants. Over 40,000 people took part in the last three editions of the event.

The idea of the Festival of Science is to popularize and disseminate science, including above all the exact sciences and engineering subjects. The event aims to increase the science-related awareness of the community and raise interest in exact science, and to show that science can be great fun and adventure. Each Festival of Science covers lectures, workshops and demonstrations and provides the experimental stands available to the participants, which demonstrate scientific issues in an interesting way. The last edition took place under the name of Podkarpackie Festival of Science.

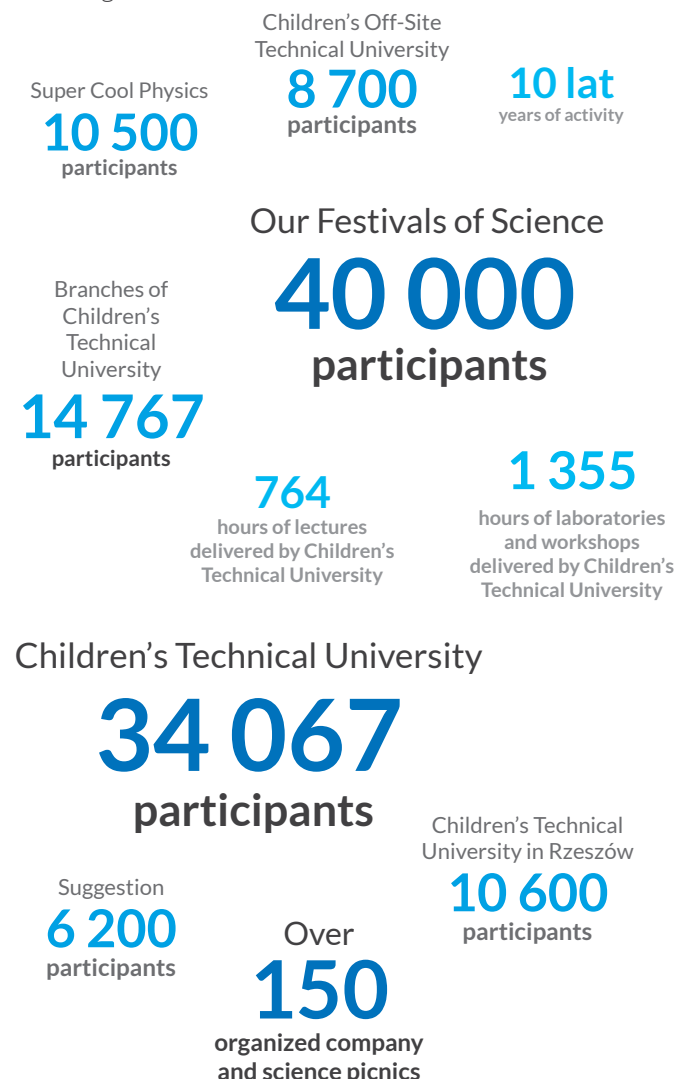
Thanks to cooperation with universities from the region, the Foundation also implements research projects and supports the education system. In the years 2015 - 2016, together with the Rzeszów University of Technology, the Foundation conducted postgraduate studies designed for teachers of vocational subjects teaching in upper-secondary schools. The study programme was developed together with representatives of companies, thanks to which the skills acquired by the participants met the requirements of the labour market.

From November 2017 to October 2019, the Foundation was a partner in an educational Learn&Fly project - co-financed by the European Commission under the Erasmus + programme. The project was implemented by partners from Poland (coordination), Portugal and Spain. The Learn&Fly project is a response to the problem of the lack of basic skills of students associated with the so-called STEM (Science, Technology, Engineering, Mathematics) in the field of science, technology, engineering and mathematics, by applying innovative and engaging teaching methods of education related to aviation. As part of the project, a set of materials supporting the work of teachers and students (STEM Kit) as well as a career guide (Careers Kit) in the aviation industry in three countries participating in the project was created, and also the national competitions followed by the international final of flying aircraft models took place. In total, over 170 people took part in the events associated with the project.

The Foundation is continually expanding its activities and looking for new forms of popularization of science as well as new partners, while constantly striving to maintain the best quality of their respective activities. That is why a new project called - RoboLAB was created. As part of this innovative undertaking, its participants will construct, among other things, robots and participate in international competitions. Thanks to the strategic partner - Pratt & Whitney Rzeszów belonging to Raytheon Technologies Corporation, and the main partners, which are the Podkarpackie province and the Ignacy Łukasiewicz Rzeszów University of Technology, the Foundation will present its first effects of work still in 2021. RoboLAB is a unique project dedicated primarily to secondary school students, but the program will also include classes for children from the last grades of primary schools and adults who are passionate about mechanics, robotics, programming and automation. The project is divided into two modules. The first module covers a series of classes and training sessions during which students will gain the knowledge that will enable them to take part in the second stage. Ultimately, it will be participation in international robotic competitions organized by the Foundation. For the purposes of these competitions, students will build complex robotic structures that will perform the tasks specified by the organizers.

The Foundation for the Support of Education is among others, a member of the „Society and Science SPIN” Association – associating the science centers in Poland,

is involved in the development of the Podkarpackie Science Centre and it also consults a number of other initiatives and educational and popular science projects in the region.



Children's Technical University

in Rzeszów (almost 10 600 participants)



The Children's Technical University provides classes for primary school students in the form of interactive lectures and scientific demonstrations, carried out with the use of experiments, teaching aids and scientific exhibits. The project was created in March 2018 as a result of establishing cooperation between the Foundation and the University of Rzeszów. Previously, since 2009, similar classes have been held under the name of the Children's University of Technology organized by the Foundation since 2012. The subject matter of the Children's University of Technology is appropriately adapted to the age of the students. The lectures cover issues in the fields of chemistry, physics, mathematics, construction, biology, aviation and all other topics related to the polytechnic industry. Classes are conducted by research scientists, industry specialists and university students, but also by science popularizers from all over the country. Until 2020, the lecture

participants were selected by way of drawing from among all children previously registered by their parents through the application form completed on the website. Lectures were held once a month, always on Saturdays. In each semester, lectures were attended by 468 children divided into three 156-person groups. In each semester, during the last class, the participants were given the diplomas and a commemorative photograph was taken. Since the outbreak of the COVID-19 pandemic, the foundation has had to reorganize its activities and adapt them to the current situation. The lectures and workshops have been transferred to online activities. Each participant had the opportunity to participate in online lectures and workshops, as well as additional forms of learning such as Online Scientific Sundays. 9 workshop groups of 15 people were created. For each of these groups, 1,5-hour workshops were conducted on the Microsoft Teams platform. The

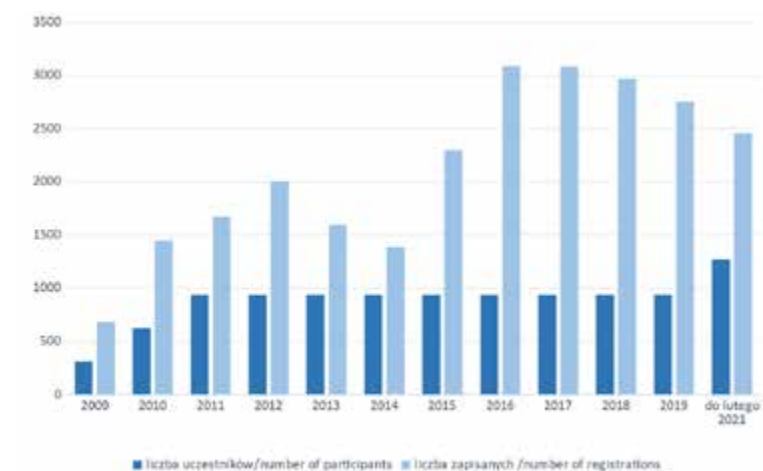
Foundation provided each participant with the necessary materials needed for the online workshops.

10,629 participants have already participated in Rzeszów. According to the data presented in the chart below, the potential of this project is still enormous and, despite the opening of branches in other cities of the province and the difficult time related to the COVID-19 pandemic, there are still many more applicants than places.

Since 2014, in order to maintain the quality of the prepared classes, the Foundation conducts surveys after each class, in which the respondents express their opinions about the classes themselves, as well as their

preparation. The surveys are prepared on a 7-point scale and there is a possibility of adding comments to each question, which often showed the involvement of parents in building the project. To date, almost 4,500 surveys have been conducted, and the result obtained by the Foundation is 6.3.

Number of participants of the Children's University of Technology/Children's Technical University in Rzeszów



Number of participants of the Children's University of Technology/Children's Technical University broken down by gender until XIX semester (completion of data collection)

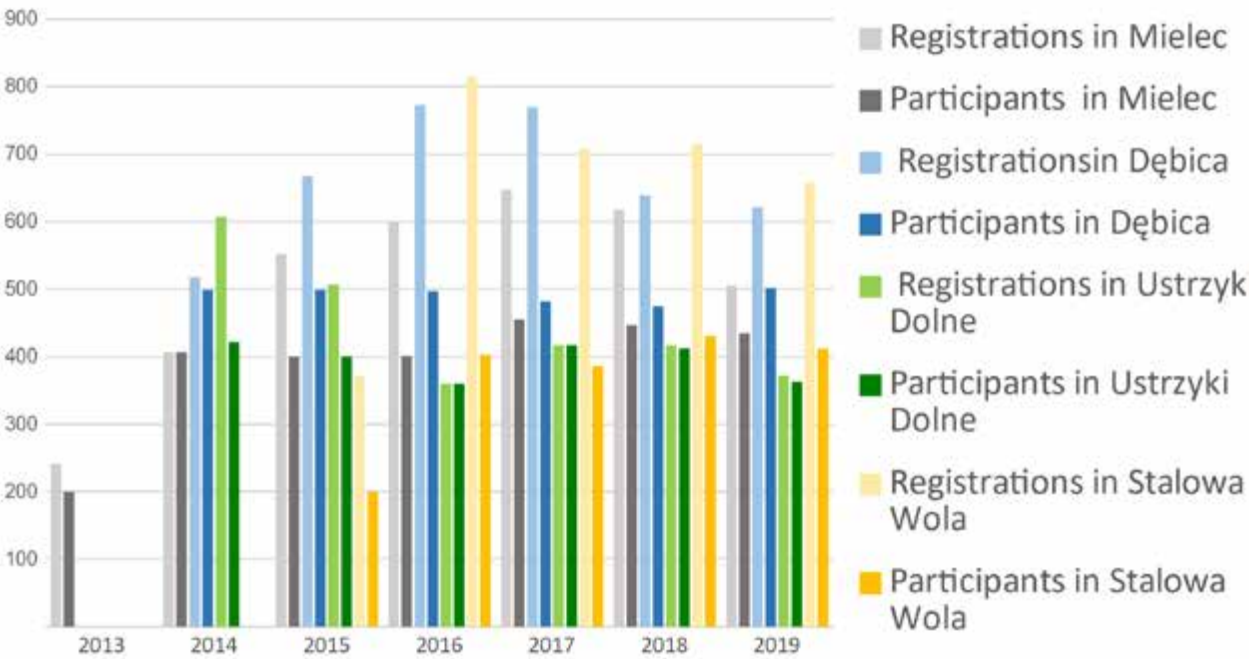
Rzeszów	Participants			Number of registered participants		
	Girls	Boys	Total	Girls	Boys	Total
semestr I	83	229	312	182	501	683
semestr II	93	219	312	237	635	872
semestr III	92	220	312	154	420	574
semestr IV	139	329	468	234	493	727
semestr V	139	329	468	289	654	943
semestr VI	156	312	468	359	763	1122
semestr VII	167	303	468	302	581	883
semestr VIII	163	305	468	298	522	820
semestr IX	162	306	468	295	499	794
semestr X	162	306	468	204	377	581
semestr XI	160	308	468	278	525	803
semestr XII	160	308	468	352	602	954
semestr XIII	185	282	468	507	832	1339
semestr XIV	184	284	468	629	1005	1634
semestr XV	180	288	468	571	878	1449
semestr XVI	187	281	468	635	922	1557
semestr XVII	196	272	468	647	876	1523
semestr XVIII	194	274	468	572	840	1412
semestr XIX	198	270	468	658	896	1554
TOTAL	3000	5425	8424	7403	12821	20224

in Branches (14 767 participants)

The classes of the Children's Technical University conducted in Branches are addressed to primary school students and their assumptions are consistent with the Children's Technical University in Rzeszów. Lectures are conducted in the areas of cities that have declared their desire to form a branch. The topics of classes in the branches coincide with the subject matter of the classes conducted in Rzeszów. The Branches also organize laboratory classes for willing students of the Children's Technical University. Since the outbreak of the COVID-19 pandemic, the Branches have also changed the organization of classes from traditional to remote mode. Each participant had the opportunity to participate in online lectures and workshops, as well as additional forms of learning such as Online Scientific Sundays. As in Rzeszów, 9 workshop groups of 15 people were created. For each of these groups, 1,5-hour workshops were conducted on the Microsoft Teams platform. The Foundation also provided each participant with the necessary materials needed for the online workshops. In addition, in 2020, a new Branch was established in Jasło, where 189 children participated in its classes.

- **Branch of the Children's Technical University in Mielec** - was launched in October 2013. As of February 2021, 3,067 young students benefited from classes during 15 semesters.
- **Branch of the Children's Technical University in Dębica** - the first classes were held in March 2014. 3,381 participants benefited from classes during 14 semesters.
- **Branch of the Children's Technical University in Ustrzyki Dolne** - the first classes were held in March 2014. 2,374 students benefited from classes during 12 semesters.
- **Branch of the Children's Technical University in Stalowa Wola** - the first classes were held in October 2015 - 2,136 children benefited from classes during 11 semesters.
- **Branch of the Children's Technical University in Jasło** - the first classes were held in October 2020 - 189 participants benefited from classes during 1 semester.

Number of participants and registrations in Branches of the Children's Technical University



Breakdown of participants of the Children's Technical University in the Branches until February 2019

Branches of the Children's Technical University	Girls	Boys
Mielec	43%	57%
Dębica	43%	57%
Ustrzyki Dolne	48%	52%
Stalowa Wola	40%	60%



Children's Off-Site Technical University (8700 participants)

The Children's Off-Site Technical University provides classes for primary school students. The classes are divided into two stages. The first stage consists of lectures conducted with the use of experiments, teaching aids and exhibits additionally illustrated by demonstrations and experiments carried out so that each child could better understand and remember their content. There are also laboratories in which all participants have the opportunity to perform their own experiments. Each class ends with a test of acquired knowledge and its winners receive prizes. The subject matter of the off-site classes cover the issues in the field of aviation, chemistry, physics, robotics and LEGO Mindstorms programming is determined with the authorities of the school in which the session is held. The classes are organized once a month, each time in a different school. In one session, a maximum of 150 students from nearby institutions participate based on percentage division of the number of students. Nearly 8,700 students from the whole province benefited in the classes of the Children's Off-Site Technical University until the end of 2019.

Secondary schools

Super Cool Physics (10 540 participants)

The classes organized as part of the project called "Super Cool Physics" are demonstrative physics lessons for middle school students carried out several times a month in selected schools with the consent and desire of the school's headmaster. The class instructors are gathered in two-person teams which are prepared both in terms of content and didactics. During the demonstrations, scientific exhibits are used, which confirm the theory presented based on the multimedia presentation. Over 10 540 students in almost 150 towns have benefited from the project.

Suggestion (6170 participants)

The classes organized as part of the project called "Suggestion" are demonstrative physics lessons for secondary school students conducted twice a month in a school selected by class instructors and with the consent of the school's headmaster. Combined issues in physics and aviation are presented by two two-person teams of class instructors with knowledge and an idea for conducting interesting classes that can strengthen the school knowledge, giving better preparation for the Matura exam. Over 6170 students in almost 100 towns have benefited from the project.

Festivals of Science

Edition 1: Festival of Science 2015

The Festival of Science was a three-day scientific event addressed to students at all levels of school education: primary, middle and secondary school, which was held on 9-11 December 2015. Its idea was to promote science, especially exact science and technical majors, and show that science can be an excellent adventure, fun or passion. The organizer of the Festival of Science was the Foundation for the Support of Education at the "Aviation Valley Association". The Festival of Science was held on 9-11 December 2015, in the premises of the Ignacy Łukasiewicz Rzeszów University of Technology - the university together with ABB Polska, Pratt & Whitney Rzeszów and the Scientific Circle of Automation and Robotics Specialists "ROBO" became the patrons of this event. The Festival of Science was held under the honorary patronage of the Marshal of the Podkarpackie province, the Governor of Podkarpackie province, the Starost of the City of Rzeszów, the Mayor of the City of Rzeszów and the Podkarpackie province Superintendent of Education.

During this three-day event, participants had the opportunity to test, among others modern flight



simulators: a glider and an aircraft simulator based on Virtual Reality technology. ABB industrial robots made a great impression on the participants of the event, which presented themselves in a slightly different role. One of the latest IRB 1200 models was drawing Mickey Mouse in front of the participants. Young participants could also try their hand and play "cymbergaj" or marbles with intelligent robots. For refreshment, the ABB robot at FlexBeer exhibition stand was serving the guests of the festival with the orange soda. The visitors could also watch and test innovative robots: IRB 460, the world's fastest palletizing robot and IRB 2600, used for machine reloading and welding. Each day of the festival was divided into panels: lecture, scientific and workshop, which were addressed to primary, middle and secondary school students. Lectures were

conducted, among others by Radosław Brzózka, a well-known presenter from popular science TVP programmes, scientific staff of the Rzeszów University of Technology: Krystyna Chłędowska, DSc. and Bogdan Woś, MSc., Wiktor Bukowski, DSc., Associate Professor along with the students from the ESPRIT Scientific Circle of Chemists, Grzegorz Masłowski, DSc., Associate Professor, as well as Grzegorz Piecuch, MSc., Eng., a representative of the university's ROBO Scientific Circle. A lecture was also given by science popularizer Krzysztof Horodecki and Jarosław Karch from ABB, who spoke, among others, about the non-industrial use of robots. During the scientific panels, their activities presented, among other things, upper secondary schools from Krosno, Grodzisko Górne and Leżajsk, and the students' scientific circles operating at the Rzeszów University of Technology: Scientific Circle "EUROAVIA", "BOLID Formuła Student PRz", Scientific Circle "Electronics and Information Technology (Rzeszów IT Group)", Scientific Circle "Mechatronik", Scientific Circle "ROBO", Scientific Circle "Human-Computer Interaction GEST" and Scientific Circle "SKNL Rover Team". Also the representatives of student organizations, and Sławomir Wolski, DSc., conducted evening workshops where the issues related to chemistry, optics, mechatronics and robotics were discussed. At the end of the event, the robot competition was held in the minisumo category organized by the Scientific Circle "ROBO", originators of the ROBO~motion International Robot Competition held every year at the Rzeszów University of Technology. The first place in the tournament was taken by the team from the Complex of Technical Schools in Mielec, which constructed a robot called PUCHACZ. The next places were taken by the Complex of Schools of Mechanical Engineering in Rzeszów and the E. Kwiatkowski Complex of Schools No. 2 in Dębica. In total, over 5,000 students from all over Podkarpackie province took part in the festival.

Edition 2: Festival of Science 2017

The 2nd Festival of Science was held on 17-18 September 2017 at the G2A Arena Exhibition & Congress Center of the Podkarpackie province in Jasionka. Over 15,000 participants attended the event for two days. The aim of the Festival was to popularize science and the most important scientific achievements, arouse interest in technical majors and promote the region's economic potential.

It was the second edition of the event. For the first time the Festival of Science was held in December 2015, thanks to the initiative of the Foundation for the Support of Education at the "Aviation Valley Association". This year, the Festival was joined by Pratt & Whitney Rzeszów as well as the Podkarpackie province, G2A Arena Exhibition & Congress Center of the Podkarpackie province and the Polish Space Agency. The technological partner of the Festival of Science was the ABB Polska.

The event was held under the honorary patronage of the Marshal of the Podkarpackie province and the Podkarpackie province Superintendent of Education.



Visitors to the Festival of Science could take part in 11 popular science lectures conducted by scientists, experienced and respected popularizers from all over Poland, visit 65 exhibition stands presenting exhibits, experiments and issues in fields such as aviation, physics, chemistry, astronomy, space technologies, robotics, but also biology or Slavic studies. The total area of the exhibition was approximately 3,000 square meters. One of the speakers of the Festival of Science was Mirosław Hermaszewski, who gave a lecture entitled "Cosmos, dreams, reality." There were also scientific demonstrations and popular science lectures on physics, biology, chemistry and robotics. During the Festival of Science it was also possible to use two interactive scientific exhibitions called "Kaleidoscope" and "Imaginarium", operating on a daily basis in the science centers with a total area of 600 square meters. The exhibitions consisted of several dozen scientific exhibits presenting many scientific

phenomena. In addition, visitors were able to sit behind the controls of airplane and glider flight simulators, visit two mobile planetariums, learn in a special dedicated zone the latest technologies used in drones and try their hand at flying small unmanned aircraft, independently program a robot or participate in workshops on space technologies organized as part of the Rover Challenge Workshop.

All events were guided by the idea of popularizing lifelong science inscribed in the mission of the Foundation for the Support of Education at the "Aviation Valley Association" and promotion of the region's economic potential by presenting the achievements of local companies, enterprises, organizations and startups.

Additionally, as part of the second day of the Festival of Science, a nationwide conference "Vocational education in the context of Industry 4.0" was held under the honorary patronage of the Minister of National Education and the Ministry of Development. During the meeting, the chances and challenges associated with the new industrial revolution were discussed. One of the guests of the Festival of Science and conference speakers was the Minister of National Education Anna Zalewska, Deputy Minister of Science and Higher Education Aleksander Bobko, and the Marshal of the Podkarpackie province Władysław Ortyl, Podkarpackie province Superintendent of Education Małgorzata Rauch and President of Pratt & Whitney Poland Marek Darecki.

The Festival of Science enjoyed great interest, and after its completion, the Foundation received a lot of congratulations and thanks from participants for the organization of such a valuable popular science event.

Edition 3: The Podkarpackie Festival of Science

The Podkarpackie Festival of Science held on 20-21 September 2019 at the G2A Arena Exhibition & Congress Center of the Podkarpackie province in Jasionka. Almost 15,000 participants took part in the event for two days. The first day was dedicated to organized groups from schools at all levels of education, while the second day was open to all willing inhabitants of Rzeszów and the Podkarpackie province.



It was the third edition of the event. For the first time, the Festival of Science was held in December 2015, thanks to the initiative of the Foundation for the Support of Education at the "Aviation Valley Association". During the second edition, Pratt & Whitney Poland as well as the Marshal's Office of the Podkarpackie province, G2A Arena Exhibition & Congress Center of the Podkarpackie province and the Polish Space Agency joined the organization of the Festival. ABB Polska became the Technological Partner of the Festival of Science. This year's event was organized by the Foundation for the Support of Education at the "Aviation Valley Association". The strategic partner of the event was the Podkarpackie Science Center. The event's partners were: the Marshal's Office of the Podkarpackie province and enterprises from the region that have been supporting education and science-promoting activities for years: Pratt & Whitney Rzeszów, Pratt & Whitney Aero Power, Pratt & Whitney Tubes, Lockheed Martin, Polskie Zakłady Lotnicze in Mielec, Safran Transmission Systems Poland, MTU Aero Engines Polska and EME Aero. The Podkarpackie Festival of Science was held under the honorary patronage of the Minister of National Education, the Governor of Podkarpackie province, the Marshal of the Podkarpackie province and the Superintendent of Schools of the Podkarpackie province.



The visitors to the Podkarpackie Festival of Science could take part in 5 popular science lectures conducted by scientists and experienced and valued popularizers from all over Poland, visit 67 stands presenting exhibits, experiments and issues in areas such as aviation, physics, chemistry, astronomy, space technologies, robotics, but also biology and Slavonic studies. The total area of the exhibition zone was about 1500 square meters. One of the speakers at the Festival of Science was science popularizer Piotr Kosek, who gave a lecture on "Space Tourism". A lecture was also given by Petros Psyllos who talked about artificial intelligence. Scientific demonstrations and popular science lectures on physics, biology, chemistry and robotics were also held. Visitors were also entertained by so-called science buskers, i.e. science jugglers, presenting scientific phenomena in a funny way and engaging participants to conduct experiments together. During the Podkarpackie Festival of Science it was also possible to take advantage of an interactive scientific exhibition promoting the emerging Podkarpackie Science Center. The exhibition consisted of over a dozen scientific exhibits presenting many surprising phenomena as well as scientific tasks and puzzles. In addition, the visitors could sit at the controls of airplane and glider flight simulators, visit two mobile planetariums, learn about the latest technologies, try their hand at flying small unmanned aircraft or independently program a robot. Airline companies from the region, which were partners of the event, also presented their exhibition stands where the visitors were able to learn more about the aviation industry and production technologies, but also to take part in competitions with prizes.

The second day of the festival ended with the event called the "Festival Evening" organized for selected guests - invitations to the event could be obtained in competitions organized on the Facebook in the form of an event. The evening included the performance of the magician Roman Słomka

and the music trio "The ThreeX". The performers combined music and the art of illusion with science and proved that nothing is impossible.

All events were guided by the idea of promoting science and lifelong education inscribed in the mission of the Foundation for the Support of Education at the "Aviation Valley Association".

The volunteers from two schools in Rzeszów were involved in organizing



the Podkarpackie Festival of Science: Zespół Szkół Mechanicznych im. gen. Władysława Andersa [the Władysław Anders Complex of Schools of Mechanical Engineering] and Zespół Szkół Technicznych im. E. Kwiatkowskiego [the E. Kwiatkowski Complex of Technical Schools].

In addition, as part of the first day of the Podkarpackie Festival of Science, a nationwide conference entitled the “Qualifications of the Future. The aviation industry for the development of the Podkarpacie region” took place. The conference was organized under the honorary patronage of the Marshal of Podkarpackie province, the Governor of Podkarpackie province, the Superintendent of Schools of the Podkarpackie province, the Rzeszów District Governor and the Mayor of Rzeszów. Its organizers were the Educational Research Institute, the Foundation for the Support of Education at the “Aviation Valley Association” and the Board of Education in Rzeszów. During the meeting, talks were held about changes in the labour market in the Podkarpackie province and about the development of education in the aviation industry in terms of future technological changes.



Project: “Studies on thermal conditions for glider flights in the Bieszczady Mountains”

The Foundation, wishing to develop its activities and increase their reach, engages in various projects, supporting the existing and creating new ones that will allow financing ideas and concepts that can be implemented and developed. Together with the Ignacy Łukasiewicz Rzeszów University of Technology and SGPP Ł, in 2014 the Foundation completed the project entitled “Studies on thermal conditions for glider flights in the Bieszczady Mountains” founded by the Ministry of Science and Higher Education as part of the “Paths of Copernicus” project. As part of the project, the Foundation together with the Rzeszów University of Technology organized a series of weekend workshops for students of the Secondary School No. 2 from Dębica. The workshops included issues related to aviation and studies on thermal lifts for glider flights, as well as the principles of preparing and conducting glider flights (also in practice), statistical data analysis or editorial workshops. In addition, the young people had the opportunity to take part and present the project and their studies at the international scientific conference called “Research and Education in Aircraft Design 2014 (READ 2014)” held in Vilnius. During the project implementation, a report was created on the studies carried out by young people participating in the project - the said report is a specific guide for glider pilots, describing the possibility of setting glider routes in the Bieszczady region. The project ended in December 2014.



Project: Learn&Fly

Learning materials and support tools to foster engagement of students in science subjects and aeronautics-related careers.



Since November 2017, the Foundation was a partner in the Learn&Fly project - an educational project co-financed by the European Commission under the Erasmus + programme. The project ended in October 2019 and was implemented by partners from Poland (coordination), Portugal and Spain. The Learn&Fly project responded to the problem of the lack of basic skills of students associated with the so-called STEM (Science, Technology, Engineering, Mathematics) in the field of science, technology, engineering and mathematics, by applying innovative and engaging teaching methods related to aviation. As part of the Learn&Fly project, training materials and tools supporting student involvement in scientific activities and selection of career paths related to aviation were developed and applied. In addition, a dissemination event was organized - workshops for teachers aimed at supporting their professional development. An additional element of the project was the international competition for secondary school students, in which the task was to build a flying aircraft model according to

the assumptions specified in the special regulations. The foundation is also responsible for this part. In May 2019, the Foundation organized the national stage of the competition in which 15 teams from all over the Podkarpackie province took part. Subsequently in September the international final took place in which the winning teams from the project's partner countries competed. The international competition was preceded by a week-long event called Aeroweek, during which the teams, their coordinators and teachers, participated in many activities organized by the Foundation, including visits to airline companies, creative thinking workshops, meetings with specialists or activities related to learning about the history and culture of the region.



Discrepancy report prepared by Lufthansa Technical Training

The Podkarpackie province, and in particular the related industrial sector, is focused on dynamic development. It is particularly visible in the aviation industry. All companies concentrated in the region compete for the highest level of employed staff, which translates into the quality of services offered and increased competitiveness on the market. Having experience in the field of training of future employees and broadening the knowledge of people already on the labour market, we have noticed the shortcomings of the education system currently in force in Poland. Engineers and technicians who gain knowledge in Polish schools have extensive theoretical knowledge at the same time having little practical experience, and thus practical skills. It was determined that the education system, which is currently applied in Poland, does not quite precisely prepare engineers to work not only in the aviation sector but in every branch of industry.

Therefore, in 2014, the Foundation financed a unique report, on the scale of Poland, which shows differences in the Polish and German education system. The discrepancy report has pointed out issues where improvements should be made to bring vocational education closer to the German one, which is considered the best in Europe.

CEKSO and CEKSO 2 projects

In 2005, on the initiative of the Association of the Group of Aviation Industry Entrepreneurs "Aviation Valley", a program was created to increase the availability of CNC operators and other professions related to the aviation industry. The result of the actions taken was the creation of the Center for Training of CNC Operators "CEKSO". It associates technical schools at the post-primary education level of the Podkarpackie province and the Center for Practical Training.

The task of CEKSO is to coordinate education in technical schools of the Podkarpackie province with real needs of industry, and on a multiannual scale to create a world-class Center for Training of CNC Operators. Educational institutions associated in CEKSO provide training of future employees of industrial companies in Podkarpackie province on secondary level, mainly the operators of numerically controlled machine tools. Each entity belonging to CEKSO has its patron from the industry. Cooperation within CEKSO allows exploring the issues related to the implementation of: modern production management tools, modern manufacturing technologies and continuous improvement tools. Centers for Practical Training, as part of their statutory activities, educate young people by adapting the forms and content of education to the requirements for future employees of companies associated in the "Aviation Valley" Association. The establishments also conduct training of adults in the form of courses dictated by the current need of enterprises.

As part of the EU project entitled "The Center for Transfer of Modern Manufacturing Technologies" implemented by the provincial self-government, the centers have been renovated and equipped with devices for over PLN 100 million.

In 2015, all projects related to CEKSO will be completed, that is why new activities are being slowly implemented, which was called CEKSO 2. The main objective is to shorten the professional adaptation period of the graduate and increase his adaptability to the variable profile of the requirements of the aviation company by:

- adapting secondary school educational programmes;
- creating motivators for students and teachers;
- preparing the teaching staff.

Together with the Rzeszów University of Technology, the Foundation has been conducting post-graduate studies since February 2015, which form part of the CEKSO 2 project. The studies are designed in a two-semester cycle. The participants of the studies are teachers of vocational subjects teaching in secondary schools. The study program was designed jointly with industry employees, thanks to which the knowledge that the participants will acquire will be closer to those required by the labor market.

SEMESTR I				
Code	Education module	Lecture	Classes	ECTS
ZKMK_01.	Engineering Graphics	-	20	5
ZKMK_02.	Workshop Metrology	5	15	5
ZKMK_03.	Materials Science, Heat and Thermo-Chemical Treatment	10	10	5
ZKMK_04.	Aircraft Engines	10	10	5
ZKMK_05.	Aero Constructions	10	10	5
ZKMK_06.	Modern Production and Control Technologies	10	10	5
Total		120		30

SEMESTR II				
Code	Education module	Lecture	Classes	ECTS
ZKMK_07	Programming and Operation of CNC Machine Tools	5	15	5
ZKMK_08	Technologies for Joining Machine Elements	10	10	5
ZKMK_09	Production Management	10	10	5
ZKMK_10	Quality, Environment and Safety Management	10	10	5
ZKMK_11	Elements of Didactics	10	10	5
ZKMK_12	Study Visits at Aviation Industry Plants	-	20	5
Total		120		30

Science and company picnics

As part of the statutory activities, the Foundation participates in many scientific events during which it presents its offer. During these events the demonstrators use scientific exhibits and so-called "Experiment Zone" which includes experimental stands where visitors, with the help of animators and volunteers, can perform simple experiments presenting phenomena and scientific principles. The "Experiment Zone" also includes stands intended for the amusement of the youngest children. In total, the Foundation has 16 scientific exhibits from various fields and two simulators: glider flight simulator and F-35 Virtual Reality simulator. There are almost 30 experimental stands in the experiment zone and popular science stands. In addition, the "Virtual Reality" zone was designed for the

Foundation, which consists of two stands. The lectures and workshops concerning, among others, aviation, chemistry, optics, programming, mechatronics or robots programming have also been organized. In addition, thanks to company picnics, which are organized on special orders of companies from the region, as well as across Poland, the Foundation raises funds for statutory activities.

The staff of the Foundation is seasoned in the organisation of such events and constantly developing and upskilling. Hence we can handle the organization of science and family picnics in a highly professional manner.

Co-funding of other educational projects

The Foundation is an entity that generates the lion's share of the budget from donations. Despite this, it sometimes happens that it responds to the needs of educational centers that would like to better implement the core curriculum or conduct various types of additional activities. Therefore, in 2013, at the request of Complex of Schools No. 1 in Ustrzyki Dolne, the Foundation funded the laboratory equipment for chemical tests for the amount of over PLN 20,000. Additionally, in 2018, the Foundation was the main sponsor of creation of the Lego Mindstorms programming laboratory at this school, providing the equipment worth over PLN 20,000 and a set of 4 computers. The equipment is used by the students of the school but it is also made available to the nearby middle school, thanks to which even a larger group of young people can broaden their knowledge. The Foundation also supports smaller initiatives - in 2015 and in 2016 the Foundation funded transportation for the students from the Special Educational and Rearing Center in Leżajsk to science demonstrations. As part of supporting financial scientific initiatives in 2018, the Foundation established cooperation with a group of students responsible for creation and operation of the Rover created from Lego blocks, the aim of which is to take part in the Rover Challenge.

Establishment of the Podkarpackie Science Center

Since the very beginning, the Foundation has been involved in the creation of the Podkarpackie Science Center. This is one of the key elements of the Foundation's activity. Therefore, the Foundation has been carrying out activities related to raising funds for this purpose for many years, has already developed several documents presenting the thematic scope and method of operation of the above-mentioned center and continuously conducts activities promoting the creation of such a facility in the Podkarpackie province. Currently, the Foundation acts as a consultant in the works on the establishment of this institution, which will be located in Jasionka, near Rzeszów, and its opening is planned for 2022.

At the same time, the Foundation, using the acquired funds, builds scientific exhibits/demonstrators which are taken for demonstration purposes to the most distant areas from large urban agglomerations, where it organizes special dedicated events and thus popularizing science. Specially designed exhibits allow participants to feel the atmosphere of the science center and see the presentation of difficult aspects of science in their own town. In 2014, these activities were intensified by receiving PLN 1 million for the construction of new scientific exhibits. The subsidy was provided by United Technologies Corporation through the companies from our region - Pratt & Whitney Rzeszów, PZL Mielec, UTC Aerospace Systems - Goodrich Krosno.

The Foundation, pursuing its statutory objectives, implements new ideas, desiring to make more children and young people interested in the exact sciences, in the belief that technically educated young people will develop Podkarpackie province and industry in the region.



**FOUNDATION FOR THE SUPPORT
OF EDUCATION AT THE AVIATION
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