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# About the Institute of Aviation

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Marketing Instytucji Naukowych i Badawczych nr 2(3), 402-404

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2012

Artykuł został opracowany do udostępnienia w internecie przez Muzeum Historii Polski w ramach prac podejmowanych na rzecz zapewnienia otwartego, powszechnego i trwałego dostępu do polskiego dorobku naukowego i kulturalnego. Artykuł jest umieszczony w kolekcji cyfrowej [bazhum.muzhp.pl](http://bazhum.muzhp.pl), gromadzącej zawartość polskich czasopism humanistycznych i społecznych.

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## ABOUT THE INSTITUTE OF AVIATION

**The Institute of Aviation** is the oldest research establishments in Europe, officially registered in 1926 although its roots go back to 1918. For eighty six years of its activity the scientists and engineers employed in the Institute of Aviation contributed remarkably to the development of the Polish economy and defense. Before the Second World War all the Polish aircraft were constructed or tested in the Institute of Aviation in Warsaw.

In 2011 the Institute of Aviation was granted prolongation of its highest A category, conferred on research institutes. At present over 1500 engineers, scientists and researchers are employed by the Institute with nine hundred of them no more than 30 years old. Four new laboratories have been set up during the last 12 months, with one laboratory dealing with the pressure tests for equipment recovering crude oil and gas being second largest in the world.

The main fields of the Institute's activity are the space technologies, aero and missile engines, materials technology, aerodynamics, composite technologies, design and test of aircraft constructions, near-field noise, and research in the field of recovery of crude oil and gas.

The Institute of Aviation is a member of the domestic and international research organizations. As from 2005 the Institute has become a partner in an AERONET - Aviation Valley project. It is a group comprising of several well positioned research units. In April 2008 the Institute of Aviation has been admitted to the Association of the EREA Research Institutes whose aim is to consolidate, coordinate and undertake joint incentives. On June 7, 2010, an international organization International Forum for Aviation Research (IFAR) was called into being in Germany, in Luebbenau. The Institute of Aviation representing Poland, played an important role in its establishment, becoming one of its founders.

The Institute of Aviation organizes international conferences, symposiums, and is a moderator in the global research incentives.

The strategy of the Institute of Aviation is *'To provide service in the international market research'*. The world market means the highest competitiveness of the research services offered leading to the development of new technologies. Polish membership in the EU opened enormous possibilities of cooperation in the field of applied research and development work. The Institute cooperates on a big scale with universities, research institutes, research centers and industrial labs in Europe, the United States, Asia, Australia and Africa. The Institute closely cooperates with the aviation industry world leaders such as: General Electric, Boeing, Airbus, Pratt&Whitney, Sikorsky, Rolls-Royce.

### **The Institute comprises of four research centers:**

**Center of New Technologies (CNT)** is one of the four research centers of the Institute of Aviation. Their area of activity is R&D service for the Polish and foreign enterprises aimed at improving competitiveness of their products. The scope of work performed by NTC includes: aerodynamics, design and testing work regarding aircraft landing gear, testing piston engines, thrust breaking tests, flows te-

sting, measurement of aircraft noise, rocket propulsion and space technologies, biomedical engineering as well as design of composite and metallic aircraft structures and of technological instrumentation. The research work performed in NTC is carried out in the laboratories furnished with the most advanced research and measurement equipment in Poland. In the Space Technologies department work is carried out on new space propulsion, raket structures and new ecological fuel. In 2008 the Adaptronic department was founded to carry out research in the field of biomedical engineering instrumental in computer aided head surgery. Research work is also carried out in the Applied Aerodynamics Laboratory and their five aerodynamic tunnels. In the aerodynamic tunnels of the Institute of Aviation almost all Polish aircraft and helicopters are tested.

**Materials and Structures Research Centre (MSRC)** is a research division concentrated on implementation of most advanced technologies in the field of strength research of materials and aero engines subunits and some other structures working in the conditions of high mechanical loading in a wide range of temperature. The center was founded in 2004 as a result of a longstanding experience of the Institute of Aviation. The Center comprises of three laboratories: Structural Tests Laboratory, Non-Destructive Tests and Materials Properties Laboratory, Materials Test Laboratory and the Fatigue Analysis Department, a significant number of certified tests places the MSRC center in a leading position in Poland.

**Net Institute** is the most recent department in the Institute of Aviation, established in 2007. The most important aspect of the NI activity resulting from its mission is to set up network structures and carry out R&D programs with their assistance, research service and implementation of innovative technologies. The scope of assignments includes commercialization of the outcome of research, promotions and advertising activity in the aviation sector, setting up systems of know-how management, monitoring conditions and requirements of the aviation sector regarding its human resources, and building up an image of a dynamic partner in the world's aviation sector for the Institute of Aviation, organization of conferences and seminars both at home and abroad.

**Engineering Design Center (EDC)** was founded in April 2000 under a memorandum of agreement between the aircraft engines department of General Electric (GE Aircraft Engines) and the Institute of Aviation. EDC is one of several global GE establishments cooperating with such GE entities as: GE Aviation, GE Oil&Gas or GE Rail. The Engineering Design Centre has been developing vigorously right from its beginning. Engineers employed in EDC concentrate on design and improvements of parts of aircraft engines, turbine ship propulsions, high power gas turbines, steam turbines. Moreover EDC carry out design work, analysis and provide technical support for machinery and equipment used in oil and chemical industry.

**Library - The Library of the Institute of Aviation** was founded in April 1926 and ranks as the topmost aviation library in Poland, considering its subject-matter, assortment of the collection and the volume. The library contains 80,000 volumes, and together with the Polish and foreign periodicals gathered for many years it is one of the best supplied libraries providing for R&D establishments in Poland.

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The core of the unique collection consists of: aviation, helicopters, aerodynamics, mechanics, strength of materials, mathematics. The library subscribes to some 70 Polish and foreign periodicals, and contains over 5,500 microfilms of scientific papers and publications.

**Scientific Publications.** The Scientific Publications Division of the Institute of Aviation publishes regularly papers and books of the leading Polish and foreign scientists, engineers - specialists in the field of aviation, employees of the Institute of Aviation as well as some authors employed in some other establishments and organizations connected with aviation. Distinguished Polish scientists from the leading universities and scientific organizations review every book, paper or information to be published so as to ensure the highest quality of every publication. The Publishing Division has four groups of publications: Scientific Library of the Institute of Aviation, Transactions of the Institute of Aviation; Journal of Polish-American Science and Technology, and the Institute of Aviations Publisher's History Series. An advanced model of promotion and marketing is implemented aimed at creating communities interested in the subject of aviation and the Institute of Aviation.

In 2008 the Institute of Aviation started the national programme „The Age of Engineers“. It is a programme for promoting engineering professions and technical sciences. Programme is addressed to gymnasium and high school students. Modern programme of promotion and marketing allows for use activities which create communities around aviation topics and the Institute of Aviation.

- [www.ilot.edu.pl](http://www.ilot.edu.pl)
- [www.facebook.com/instituteofaviation](https://www.facebook.com/instituteofaviation)
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