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**ON THE OCCASION OF THE 80TH
BIRTHDAY OF PROFESSOR RISTO
RIBAROSKI**

**OVERVIEW ON THE
SCIENTIFIC AND
ACADEMIC
CONTRIBUTION OF
PROFESSOR RISTO
RIBAROSKI WITH
EMPHASIS ON HIS
PUBLICATIONS**

Prof. Ribaroski has abundant, versatile and significant opus. While he was one of the few in geodesy professors in Macedonia, teaching many generations of students in geodesy and other subjects in geodetic-civil engineering fields, he was also able to write and publish textbooks in almost all subjects he was teaching. Many of those are the first ever textbooks in Macedonia in the relevant subjects. Prof. Ribaroski was also leading and participating in many scientific projects which were presented at international events. Some biographic data about Prof. Ribaroski are presented below.



Prof. Ribaroski was born in Bucharest (Romania) in 1943, in a family of Macedonian emigrants. He spent his childhood and youth in Ohrid, Skopje and Belgrade – elementary education was completed in Ohrid, Civil engineering high school (geodesy department) in Skopje and University education at the faculty of civil engineering in Belgrade. At 1969, he started working at the Faculty of Civil Engineering in Skopje (St. Cyril and Methodius University) and progressed to be assistant

professor in 1979, associate professor in 1984 and full professor in 1990.

The job description at the Faculty included theoretical and on-field practices with the students of civil engineering and architecture. Also, he lectured geodesy and practical geodesy on part-time basis in the period 1973-75 at the civil engineering high school in Skopje. Mr. Ribaroski spent the summer semester in 1977/78 at the Geodesy institute of the Civil Engineering Faculty in Bucharest (Romania), where he got familiar with the latest geodesy achievements at that time and prepared his habitation work - *Theoretical aspects of preparing stenographic projection of the territory of Republic of Macedonia*.

After being elected as university lecturer assistant professor in 1979, Mr. Ribaroski lectured the following subjects: theory of errors with adjustments, geodetic calculations, basics in high geodesy, and geodesy for the students of first level in geodesy, as well as geodesy for students of civil engineering study programme at all departments of the Faculty of Civil Engineering in Skopje.

After the establishment of the full Geodesy studies in year 2001, prof. Ribaroski lectured the following subjects: theory of errors, high geodesy, combined parametric-correlative adjustments, and management and technology of geodetic works. Between 1995 and 2003, he lectured also the following subjects at the Faculty of Geology and Mining at the Goce Delchev University in Stip: geodesy and surveying in mining to the students from the mining department and subject maps and geomorphology to the students from the geological department.

Upon establishment of the Military Academy in Skopje, prof. Ribaroski lectured applicative geodesy with GIS for three years. Also, he lectured cartography at the post-graduate studies at the Faculty of natural sciences and mathematics in Skopje until his retirement in 2007. And after the retirement, in the period 2010-2017, he lectured geodesy, basics on civil engineering and civil engineering in mining at the University Goce Delchev in Shtip - Faculty of Natural and Technical Sciences.

Prof. Ribaroski started to publish textbooks in 1988, when his first textbook *Theory of errors with adjustments* was published by the Ss. Cyril and Methodius University – Skopje. In that textbook, calculating and adjustment of direct, indirect and conditional measurements are presented in clear and explicit way. By

providing many examples, those subjects are in fact understandable to all readers.

In 1994, the University of Cyril and Methodius published Prof. Ribaroski's 2nd book – *Basics of high geodesy*. This is original and specific textbook, since it comprises subjects such as mathematical cartography, geodetical astronomy, precise geodetical measurements, satellite positioning etc. This textbook presented all modern achievements of the Geodetical science at that time.

After the first edition of the first textbook *Theory of errors with adjustments* was sold out, the 2nd edition was prepared in 1997. This edition was adjusted to the needs of the upcoming geodesy studies which started in 2001. Apart from the content from the first edition, the 2nd edition was enriched with theory of probability elements in theory of errors.

The next textbook was published in 1999 under the subject *Geodetic calculations*, as per the program that included this subject in the final semester of the Geodesy studies. This textbook was about practical application of indirect and conditional adjustments to certain geodetic points and smaller networks. The numerous examples presented in explicit way enabled easier understanding of this complex subject which has mathematical backgrounds from Theory of errors with adjustments. With this textbook, Prof. Ribaroski completed his opus for all subjects he was teaching at the first-degree geodesy studies at the Faculty of Civil Engineering in Skopje.

Prof. Ribaroski's next textbook– *Practical Geodesy* was published in 2003 by the Faculty of Civil Engineering in Skopje. This textbook was adjusted to the program of all departments of civil engineering studies and apart from the usual geodesy content, it contained parts about the modern methodologies at that time. It was therefore considered a modern textbook that presents all the benefits from the modern geodesy practice methodologies to the readers.

As a contribution to the newly-started complete geodesy studies at the Faculty of Civil Engineering in Skopje, Prof. Ribaroski published the textbook *High geodesy – Basic geodetic networks* in 2005. This textbook contains the three basic parts of High geodesy: existing basic geodetical networks (one and two-dimensional), precise geodetical measurements that are applied during establishment and maintenance of the basic geodetical networks and special (global, three-dimensional) geodetical networks as a new

modern, reality. This textbook is original piece in Macedonian language.

During same year, Prof. Ribaroski also published the textbook *Management and technology of the geodetical works* which is used by the geodesy students at the Faculty of the civil Engineering. The main motto of this textbook is that – ‘The economic activity consists of people, products and profit, but the most important element are the people’ (Lee Iacocca).

Just before his retirement, in 2007, Prof. Ribaroski published his most complex textbook – *Combined parametric – correlative adjustments*. Although it is mainly intended to be used for the post-graduate geodesy studies, this textbook can be useful to the geodesy experts for resolving numerous practical theoretical issues during the every-day geodesy practice.

Following the retirement, Prof. Ribaroski published two more handbooks for the students of the Goce Delchev University in Shtip – *Geodesy* in 2014 and *Civil Engineering in Mining* in 2017. Both are available in digital format as part of the e-library of the Goce Delchev University in Shtip.

To conclude, Prof. Ribaroski’s publishing activity is abundant, versatile and continuous. All his textbooks are using simple expressions, enabling the readers to easily apply the content in their everyday practice. One of the main benefits from Prof. Ribaroski’s textbooks is establishing original terminology in Macedonian language for numerous technical expressions and procedures that were non-existing due to the small number of specialized geodesy textbooks published in Macedonian language.

Apart from the educational activities, Prof. Ribaroski also had success in offering expert

advices. It is usual for the professors from the faculty of civil engineering to cooperate with different corporate entities and other specialized organizations by offering expert advice and solutions for different types of complex problems. Prof. Ribaroski was included in such activities from the very beginning of his career as assistant professor and to date has participated in about 150 such projects, either as individual or as a team member. Those project activities include geodetic measurements, calculations, adjustments, and above all numerous examinations of the stability of different objects of capital significance for the country. As result of such activities, many studies, projects and audits were produced, most of which under direct supervision of Prof. Ribaroski.

Prof. Ribaroski also had success in the field of Science. He participated in many congresses, seminars and symposiums and was also managing several scientific projects, out of which two are most significant. Under his leadership, the scientific Project – *Choosing the most suitable cartographic projection for the presentation of the territory of Republic of Macedonia* was completed in 1998. After that, in 2003, the project *Applying the UTM projection and WGS geodetical system as basic NATO standards in the cartographic projection of Republic of Macedonia* was completed. With these two projects, all problems regarding the compliance of our basic standards with the European and world standards were theoretically resolved.

Looking at Prof. Ribaroski’s opus, it can be confirmed that small nations do big things, i.e. there are numerous scientists and educators from less developed countries that have significant achievements during their careers, which leave everlasting mark in their direct and wider surrounding.