

Radoslav Horvat

Radoslav Horvat, considered founder of circuit theory in the region of former Yugoslavia, passed away on December 21, 2004, in Belgrade, Serbia, at the age of 84. He served on the Faculty of Electrical Engineering at the University of Belgrade since 1950 and has been responsible for the education of thousands of his country's engineers in circuit theory and network synthesis. He is the author of five books and numerous research papers.



Radoslav Horvat joined the Faculty of Electrical Engineering at the University of Belgrade in 1950 and taught the course on “Theoretical Principles of Electrical Engineering.” The course emanated from a course on “Fundamentals of Electrical Engineering” and dealt with topics known today as “alternating current (AC).” It was taught to the 3rd year undergraduate students in electrical engineering and covered what is today known as “circuits with lumped parameters.” Professor Horvat realized early the importance of circuit theory and in 1956, shortly after returning from a sabbatical spent in UK, he established a course on “Theory of Electrical Circuits,” a title that has remained on the curriculum until today. Professor Horvat introduced the most up-to-date topics at that time dealing with circuit analysis. Since he was not only an engineer but also a mathematician, he systematically organized the material used in the course offered to electrical engineering students and in 1959 published the well-known textbook “Theory of Electrical Circuits” published by Građevinska Knjiga. The book is known to thousands of electrical engineers not only at the Faculty of Electrical Engineering in Belgrade, but throughout former Yugoslavia, and it served as an example to younger faculty who later authored their own textbooks. Shortly afterwards, Professor Horvat published another well-known textbook “Special Electrical Circuits” that contained coupled circuits (transformers), two-port elements, and filters. He completed the series of textbooks with the book “Elements of Analysis of Electrical Circuits” where he used a modern approach to describe principles of analyzing circuits in the time domain.

Teaching a scientific subject calls for developing new material and forming new faculty who would continue the education process. Professor Horvat always surrounded himself with extremely capable collaborators, including the late Professor Marija Šušnjar who started as an Assistant Professor teaching Fundamentals of Electrical Engineering and then continued to teach Theory of Electrical Circuits as Associate Professor, as well as late Professor Mirko Milić, member of the Serbian Academy of Arts and Sciences, and outstanding scientist with an international reputation. After graduation, Professor Milić worked as Teaching Assistant to Professor Horvat and was promoted to Assistant Professor for Theory of Electrical Circuits, teaching in the new Department of Nuclear Engineering and later in the Department of Engineering Physics.

During his career between 1950 and 1985, Professor Horvat established programs in *Theory of Analysis and Synthesis of Electrical Circuits*, first at the University of Belgrade and then at other University centers in former Yugoslavia: Niš, Novi Sad, Podgorica, Čačak, Banja Luka, Sarajevo, Skoplje, and Priština, and directly contributed to the field in centers in Split, Zagreb, Ljubljana, and Maribor. In

those centers students of Professor Horvat continued to work in the area of circuit theory. They include Professors Momčilo Bogdanov (Skoplje), Milić Đekić (Čačak), Petar Hinić (Banja Luka), Gordana Jovanović-Doleček (Sarajevo, Mexico), Dragan Kandić (Belgrade), Ljiljana Milić (Belgrade), Slobodan Milojković (Sarajevo, Priština), Ladislav Novak (Novi Sad), Radoje Ostojić (Podgorica), Branislava Peruničić (Sarajevo), Radmila Petković (Niš), Branimir Reljin (Belgrade), Dušan Starčević (Belgrade), and Dr. Borivoje Stamenković (Bern).

The School of Professor Horvat in Theory of Electrical Circuits was known and recognized worldwide, as noted in the article by Van Valkenburg in 1984 that appeared in the issue of the *IEEE Transactions on Circuit Theory* published on the occasion of the IEEE Centennial.

Besides teaching, Professor Horvat already in 1968 established a series of international symposiums on theory of electrical networks, *Int. Symp. on Network Theory (ISYNT)*, held in Yugoslavia and were attended by the best-known scientists in this field including J. Aggarwal, T. Bickart, H. Carlin, L. Chua, P. Civalleri, A. Davies, T. Deliyannis, C. Desoer, S. Dutta Roy, J. Fidler, A. Fettweis, M. Ghausi, E. Kuh, E. Laker, E. Lindberg, G. Martinelli, S. Mitra, G. Moschytz, J. Neiryneck, R. Newcomb, A. Petrenko, T. Roska, R. Saal, J. Scanlan, G. Temes, Y. Tokad, M. Van Valkenburg, V. Zima, and others. The first ISYNT was held in 1968 in Belgrade and then in Herceg-Novi (1972), Split (1975), Ljubljana (1979), Sarajevo (1984), and Zagreb (1989). Professor Horvat was a program committee member of the *European Conference on Circuit Theory and Design (ECCTD)* and one of the Editors of *Int. Journal on Circuit Theory and Applications*. He was Honorary Chair of the *IEEE Conference of Artificial Neural Networks (NEUREL '2000)* and reviewer for *IEEE Trans. Circuits and Systems* and *Int. Journal on Circuit Theory and Applications*. He was a founder and active member of Society ETRAN and its Honorary President.

Based on the notice published in *IEEE Signal Processing Magazine* in September 2000, on the occasion of Professor Horvat's 80th birthday, and *In Memoriam* issued in December 2004 by the Faculty of Electrical Engineering, University of Belgrade.

Ljiljana Trajković

Simon Fraser University, British Columbia, Canada