Professor Michał Życzkowski (1930 – 2006)

„On the footsteps of the great Master”

Błażej Skoczeń
Institute of Applied Mechanics
Cracow University of Technology
Michał Życzkowski graduated from the Faculty of Mechanical Engineering of the Cracow University of Technology in 1954.

How many students have written a book in the course of studies?
Doctoral Thesis 1955
under the supervision of prof. Izydor Stella-Sawicki

Elastic optimal columns under the Eulerian force always showed zero cross-section at the free end!

Hence, from the engineering point of view the elastic-plastic buckling should be considered in this case!

Proposed inverse method: assumption of the exact equation of the deflection line
Scientific achievements as young researcher

First DSc. degree conferred at the Cracow University of Technology!

Michał Życzkowski
„On some problems of creep buckling of columns”
Habilitation Monograph, 1959

Kempner-Hoff definition of the critical time was inconsistent: infinitely large deflections were evaluated on the basis of small deflection theory!

Hence,
Dr Michał Życzkowski developed a finite deflection theory of creep buckling of columns
Scientific achievements and teaching students

W. Krzyś, M. Życzkowski
„Theory of elasticity and plasticity. Problems and examples.”
PWN, Warszawa, 1962

As a young scholar, He was attracted by the fact that in the theory of plasticity the superposition principle does not hold!

Hence,
He presented solutions of complex problems in the theory of elasticity and plasticity in the form of a book.

Michał Życzkowski progressed through all the grades of the academic career to be conferred the title of professor in 1962 and the title of full professor in 1969.
Scientific achievements as confirmed researcher

M. Życzkowski
„Combined loadings in the theory of plasticity”
PWN, Nijhoff, 1981

Main goal: to introduce a classification of combined loadings and derive constitutive equations and interaction surfaces for a possibly broad class of problems in the theory of plasticity.

After some 20 years (1953-1973) of intensive work the Polish version of the book has been published. The enclosed bibliography contains more than 3000 entries, about 90% of the world literature on the combined loadings in plasticity.
In the late 70s Professor Witold Nowacki, the President of Polish Academy of Sciences, initiated publication under the auspices of Committee of Mechanics 11-volume encyclopaedic handbook on Engineering Mechanics. In 1986 Professor Michał Życzkowski was appointed editor-in-chief of the handbook.

Professor Michał Życzkowski contributed with non-conservative problems, elastic-plastic and creep buckling as well as optimal design of columns.

The most comprehensive handbook on solid mechanics in the world.

A. Gajewski, M. Życzkowski
„Optimal Structural Design under Stability Constraints”,
series: Mechanics of Elastic Stability

Optimisation under stability constraints played an important role in the scientific curriculum of Professor Michał Życzkowski.

The monograph contained: basic problems of structural stability, optimisation methods, applications to: columns, arches, trusses, frames, panels and plates, shells and thin-walled bars.

The bibliography contained over 2000 entries and was, at that time, nearly complete.
Still in 2005 Professor Michał Życzkowski decided to join the scientific project on:
„Description of plastic flow, phase transformations and evolution of micro-damage at cryogenic temperatures as well as structural applications”
The project has been successfully completed in 2009 and brought 7 high rank publications in the Elsevier journals and many publications in conference proceedings.
Professor Michał Życzkowski was appointed head of the Institute of Mechanics and Machine Design in 1973. He has been acting as the head of Institute over 23 years.

In 1969, thanks to His great effort, a prestigious course for advanced students called Applied Mechanics (later: Computational Mechanics) has been created. Many graduates of these studies were employed in the scientific institutions across the Europe and beyond its borders.
In the scientific circles Professor Michał Życzkowski was an unquestionable scientific and moral authority. With his personality he exerted strong influence on the life of the Institute, Faculty and the University. His extremely high rank in science on an international scale raises the position of the academic community of which he was an eminent number.