



## BOOK REVIEW

*Generation of Surfaces: Kinematic Geometry of Surface Machining* by Stephen P. Radzevich, CRC Press, Taylor & Francis Group, Boca Raton 2014, xl + 698 pp., ISBN 978-1-4822-2211-1.

The book *Generation of Surfaces: Kinematic Geometry of Surface Machining* is aimed to provide an extensive and comprehensive survey on the modern theory of part surface generation with a focus on kinematic geometry of part surface machining on a multiaxis numerical control (NC) machine. It presents the key methods for applying the differential geometry/kinematics (DG/K)-based approach to part surface generation – an extremely powerful tool for solving challenging problems in mechanical/manufacturing engineering. Although the orientation of this monograph is toward computer-aided design (CAD) and computer-aided machining (CAM), it is also useful for solving problems concerning the generation of part surfaces on machine tools of conventional design. The book is intended to be used by mechanical and manufacturing engineers, researchers who are active in the field of the geometry of sculptured part surfaces and kinematics of part surface generation, and senior undergraduate and graduate university students of mechanical engineering and manufacturing.

The book consists of eleven chapters divided into three parts entitled “Basics”, “Fundamentals”, and “Applications”, respectively.

The first part, containing Chapters 1 through 3, provides an analytical description of part surfaces, basics of differential geometry of sculptured part surfaces, along with principal elements of the theory of multiparametric motion of a rigid body in the Euclidean three-space. In Chapter 1 the author presents the essential mathematical concepts that form the basis for the theory of part surface generation. Although the principal elements of the classical differential geometry of surfaces are widely used in the text, the focus is on the difference between classical differential geometry and engineering geometry of surfaces. Numerous examples of the calculation of major part surface elements are provided. Chapter 2 is devoted to the generalized analysis of kinematics of sculptured part surface generation. The definitions and determinations of major applied coordinate systems are introduced