



Government of India
Ministry of Human Resource
Development

MICROMECHANICS OF FRACTURE

21- 25 January, 2019

Department of Applied Mechanics
Indian Institute of Technology, Delhi– 110016



Course Offered by:

Professor Dr.-Ing. Dietmar Gross

Division of Solid Mechanics

Technische Universität Darmstadt, *Germany*

Fracture and micromechanics are powerful tools used to understand and predict the behavior of modern materials and structures. Fracture Mechanics describes the behavior of cracked structures including failure on the macroscale and on the microscale. Micromechanics, on the other hand, investigates the impact of the inhomogeneous structure of the material, including its defects, on the macroscopic behavior. Therefore, both fields are strongly linked. They are important to design macroscopic structures, to design new materials with specific properties, to avoid failure and to understand and explain the behavior of materials. The course aims to provide the most important principles, concepts, models and methods of Fracture and micromechanics.

Professor Dr.-Ing. Gross is a Professor of Mechanics at the Department of Mechanics, Technische Universität Darmstadt. He has authored or coauthored 16 books including Engineering Mechanics, Fracture Mechanics, Structural Mechanics and Wave Propagation and more than 350 refereed papers in journals and conference proceedings. His current research interests include the dynamic behavior of smart materials like ferroelectrics, nanomagnets. Dr. Gross served as Associate Editor and as reviewer for various journals, including the JMPS, IJSS, IJF, ZAMM or EJMA. He has been awarded with a von Humboldt Research Award and he is a member of the Polish Academy of Sciences.