National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Development and characterization of tubular scaffolds using novel solvent based extrusion 3D Printing
Speaker	: Prof Rudranarayan Kandi
Supervisor	: Prof. Saurav Datta , Mechanical Engineering Department Phone: 0661 - 246 2524, E-mail: sdatta@nitrkl.ac.in
Venue	: Seminar Hall – ME001
Date and Time	: 19 Jun 2024 (03:00 PM)
Abstract	: Tubular scaffold offers alternatives to disease affected digestive tract, trachea, vascular organs, and blocked ureters. For the last decades, customized tubular scaffolds have attracted huge demand due to several advantages over conventional scaffolds in terms of rigidity and flexibility. These scaffolds are constructed to mimic the natural extracellular matrix (ECM) of tissues and organs, providing support for cell attachment, proliferation, and tissue regeneration. However, fabrication of customized scaffolds is quite challenging using conventional manufacturing methods. Hence, in this work, customized tubular scaffolds of bioresorbable and biopolymers were fabricated using a novel solvent-based extrusion 3D Printing in which printing occurred over a rotating predefined template to produce tubular structures. Rheology and thermal characteristics prepared ink were investigated. Morphological and mechanical characterizations were performed. Finally, a case study was performed to fabricate tubular scaffolds for tracheal regenerative applications.