

Name of the Lecture	Bioreactors
Level of the Lecture	Graduate
Length of the Lecture	25 minutes
Type of the Lecture	Online
Lecturer	Assoc. Prof. Cem Bulent Ustundag
Lecturer Email	cbustundag@gmail.com
Aim of the Lecture	Aim of this course is to learn about bioreactors, their types and applications in Tissue Engineering. This course introduces students to modelling and design bioreactors based on biological growth kinetics and mass balances. Besides bioreactor design, it provides a detailed understanding of scale-up and operation. It will present all aspects that are relevant for an appreciation of all relevant aspects of bioreactors.
Content of the lecture	Introduction to Bioreactor Systems Bioreactor Types Optimization Parameters and Design Bioreactors Bioreactor Applications on Tissue Engineering Scaffold Development using a Bioreactor
Recommended Sources	Bioreactors for Tissue Engineering: Principles, Design and Operation, 1st edition, Julian Chaudhuri and Mohamed Al-Rubeai, Netherlands 2005. Bioreactor Systems for Tissue Engineering, 2 nd Edition, Cornelia Kasper, Martijn van Griensven and Ralf Pörtner, Heidelberg, 2009
Language of the lecture	English
Learning Outputs	To gain knowledge about bioreactors and their types. To understand how to design a basic bioreactor To learn about bioreactor applications in tissue engineering To be able to design and develop a scaffold for bioreactor To relate this fundamental knowledge to bioreactor engineering