

Name of the Lecture	Bioprinting
Level of the Lecture	Graduate
Length of the Lecture	25 minutes
Type of the Lecture	Online
Lecturer	Songul ULAG
Lecturer Email	songul.ulag@marmara.edu.tr
Aim of the Lecture	The lecture aims to define and analyse different types of 3D bioprinters and identify current applications and limitations of bioprinting.
Content of the lecture	<ol style="list-style-type: none"> 1. Define the basics of bioprinting 2. Introduce the different types of bioprinting 3. Identifying the bioinks for bioprinting <ol style="list-style-type: none"> 1. Hydrogel-based bioinks 2. Protein-based bioinks 3. Polysaccharides 4. dECM-based bioinks 5. Synthetic polymer-based bioinks 4. Bioprinted tissues <ol style="list-style-type: none"> 1. Bone 2. Skin 3. Cornea 4. Cartilage
Recommended Sources	<ol style="list-style-type: none"> 1. Ibrahim T. Ozbolat. 3D Bioprinting Fundamentals, Principles and Applications. 2. Dong-Woo Cho, Byoung Soo Kim, Jinah Jang, Ge Gao, Wonil Han, Narendra K. Singh. 3D Bioprinting Modeling In Vitro Tissues and Organs Using Tissue-Specific Bioinks. 3. Jeremy M. Crook. 3D Bioprinting Principles and Protocols.
Language of the lecture	English
Learning Outputs	<ol style="list-style-type: none"> 1. Understand the operating principles of bioprinting technologies. 2. Evaluate the existing bioprinting technologies and their specific advantages and disadvantages. 3. Demonstrate an understanding of the design criteria for bioinks and formulate bioink specifications for bioprinting technologies and application areas. 4. Analyze current challenges in the field of bioprinting. 5. Fabricate specific tissues like cornea, bone, and skin.