CVL4OT Creating A Virtual Laboratory For Online Teaching

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Name of the Lecture	Additive Manufacturing
Level of the Lecture	Graduate
Length of the Lecture	**25 minutes**
Type of the Lecture	Online
Lecturer	Christophe Egles
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Aim of the Lecture	Additive manufacturing (AM), also known as 3D-printing, is a layer-by-layer manufacturing process which allows the creation of implants with a more complex structure (internal and external), when compared to traditional manufacturing processes such as milling and turning. Multiple applications have been demonstrated making it an extremely versatile technique. In this lecture we will study the potential use of additive manufacturing in the design and production of biomaterials or tissue-like structures.
Content of the lecture	1. Introduction to additive manufacturing (examples from house building to firearms) a. History b. Context c. advantages over other techniques (machining, substractive fabrication, molding, formative fabrication) 2. Design of a workflow for 3D printing 3. The different printing families (4 families classified by state and material) a. Paste b. Liquid c. Powder d. sheet 4. Examples of the most used in each family 5. Towards biological applications for biomaterials a. soft tissue b. hard tissue
Recommended Sources	-
Language of the lecture	English

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Learning Outputs	Help in the choice of the most appropriate 3D technique for biological aplications
	Workflow design
	Know-how approach
	Example-based lecture
	Introduction to cell-based bioprinting

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