esade

TEACHING GUIDE - 2025-2026

Prototyping an impact technology with digital fabrication

UGRA_014957

Departments	Department of Marketing
Teaching Languages	English
ECTS	4
Teacher responsible	Carles Torrecilla Gumbau - carles.torrecilla@esade.edu

Course Goals

Based on 3D printing, laser cutting, and Arduino board programming technologies:

Learn the basic platforms and concepts necessary to use these technologies.
Discover the possibilities of each technology individually and in combination.
Become aware of the importance and flexibility these technologies provide for innovation, both in terms of prototyping and customized production, as well as solving problems in remote or resource-limited environments.
Understand the new models of production at a macro level.
Gain confidence in the potential that these technologies offer as executives to efficiently and effectively implement their ideas.

Previous knowledge

There is no need of prior knowledge, but the experience of working on the previous projects will be very useful.

Prerequisits

No

Teaching methodology

This course will use a multi-methodological approach.
It will include lectures (featuring presentations, quizzes, exercises, etc.) and practical sessions with the class split into smaller groups to learn specific technologies. The course will involve a project that can be either simply documented, or, for more ambitious students, brought to life through the construction of their own prototype. To support this, students will have access to tutors who will assist them with the available machinery.

Description

Course

This course is designed to open up a world of possibilities for participants

contribution to program

by introducing them to Fablabs and the diverse implementation opportunities they offer. Fablabs are fabrication laboratories equipped with advanced tools and technologies that enable individuals to bring their ideas and projects to life.

Short description

Throughout the course, participants will explore the concept of Fablabs and understand how they can leverage these spaces to transform their creative ideas into tangible projects. The course aims to nurture participants' conceptual creativity and enhance their ability to develop concrete projects using the resources available in Fablabs.

Bibliography

Gershenfeld, N., Gershenfeld, A. and Cutcher-Gershnfeld (2017), Designing Reality: How to Survive and Thrive in the Third Digital revolution, Basic Books (Book)

Anderson, C. (2012), Makers. The New Industrial Revolution, Random House (Book)

Armstrong, K., Diez, T., Goldapple, L., Schmidt, A. & Vilum, C. (2019), Design, Remix, Share, Repeat, Fab Lab Barcelona (Book)

David Lang, Zero to Maker: Learn (Just Enough) to Make (Just About) Anything, MAke: makezine.com, 978-4493-5643-9 (Book)

Vander, J. (2017), The Ultimate Guide to Designing, Prototyping and Mass Manufacturing Your Product Idea., JCAD USA (Book)

Content

#	Topic
1	Learn about Goals & Possibilities -New markets, new challenges, new society
2	Introduction to Digital Fabrication. - Makers. The New Industrial Revolution. What is a Fab Lab? - Subtractive manufacturing. Laser Cutting & 2D Design - Additive manufacturing. 3D Printing & 3D Design - Programming & Electronics Basis
3	Prototype: Learn through building and testing - What is prototyping in the early stage of innovation - Getting acquainted with different rough prototyping methods - How to get user feedback using rough prototypes - How to implement inputs from testing and iterate
4	Make: Use digital fabrication to manufacture your prototype - Fab Lab: Working on your prototype. - 2D, 3D Design & Modeling. - Mobile APP modeling. - Laser cutting, 3D Printing and Electronics manufacturing.

Assessment

Tool	Assessment tool	Category	Weight %
Written and/or oral exams	Exam	Ordinary round	25.00%
Group project	Jury - Proposed prototype	Ordinary round	25.00%
Attendance and	Attendance, punctuality and	Ordinary round	25.00%

Tool	Assessment tool	Category	Weight %
punctuality	participation		
Individual or team exercises	Compliance with partial delivery deadlines	Ordinary round	25.00%
Written and/or oral exams	Retake Exam	Retake	100.00%

PROGRAMS

BITLASI22-Bachelor in Transformational Leadership and Social Impact (Undergraduates: Business)

BITLASI22 Year 1 (Mandatory)