Blended Intensive Program

Important note for students: Before applying, contact your home university International Office and make sure you are eligible for Erasmus+ Short Mobility funding

General information

BIP Title	**Sustainable, Advanced and Digital Manufacturing**
Hosting Institution	**Universidad de Cádiz (E CADIZ 01)**
BIP Code	2023-1-ES01-KA131-HED-000120807-1
Abstract (few lines describing the course partners can use for dissemination)	Research into the interdisciplinary areas of additive technologies, sustainable and digital manufacturing, covering common and innovative materials. Develop advanced skills in engineering, creative thinking, and environmental sustainability with this course focused on responsible material practices, reusability, and recycling in manufacturing processes. Following an innovative curriculum, in-person and virtual activities will encourage global connections with diverse experts. Join us for an enriching experience across various sectors that combines knowledge, collaboration, and environmental consciousness.
Study field	**0710: Engineering and engineering trades, not further defined**
Calendar	**Nomination deadline (by sending university): 22/11/2024** Virtual component: 07/01/2025-09/01/2025 + 21/01/2025-23/01/2025 Physical mobility: 13/01/2025 - 17/01/2025
Total number of hours	60 hours (online: 35 h / on-site: 25 h.)
Number of participants	The minimum number of participants is 20, maximum is 25. **BIP partners (UNINA and DCU): can propose up to 10 students** **SEA-EU universities: can propose up to 4 students**. Each university will also administer a reserve list

Mobility costs	This mobility is eligible for Erasmus+ funding. **Contact your university International Office for further details.**
Contact	**Person in charge of signing the Learning Agreement:** **Irene Del Sol Illana - irene.delsol@uca.es**

Pedagogical contents

Target group	The course is open to **Bachelor in final years, Master and Doctoral students in Engineering trades in Mechanics, Materials, Aerospace, Organization, Design and Industrial, and Manufacturing and Process Engineering and University staff.**
Language requirements	**English B2**
Selection criteria	Students will be **selected by *sending* university** based on: ● Academic background in target fields ● Study level (priority to Master & PhD students) ● English B2 level ● Formal or informal experience
Objectives and Description	This course aims to enhance skills in engineering, creative thinking, and environmental sustainability, focusing on responsible and sustainable use of materials, their reusability, recycling, transformation processes, and associated energy. Materials and digital manufacturing processes, such as additive technologies, will be approached from an interdisciplinary conception involving actors from research, education, and industry. The course introduces design tools like material analysis, production technologies and numerical methods to minimize energy and raw material usage while promoting economic development and well-being without environmental compromise. It emphasizes sustainable practices, promoting materials suitable for additive technologies and efficient manufacturing practices..
Methods and outcomes	This course includes in-person and virtual activities, encouraging the participation of diverse national and international experts in scientific and industrial fields. Activities will be divided into online lectures, laboratory

	activities, company visits and group activities. To engage students and stimulate their proposals, company video presentations and roundtable discussions will be used. The course encourages active participation. Small groups to ensure an engaging experience for all participants. Instructors, when not engaged in teaching, will become learners themselves. The main outcomes of the programme are: - sharing expertise and experiences, highlighting challenges related to the application of both traditional and innovative materials and processes. - discussing methods to address existing or emerging problems, especially in the context of environmental sustainability, including wastes issues. - multidisciplinary perspectives and create networking opportunities. - collaborative project proposals
Any required material/digital skills to take part to the course:	N/A
ECTS	6
Evaluation	The evaluation will be based on assignments, including literature reviews, laboratory and numerical tests, and oral presentations. Most of the activities will be group projects.
Transcript of records (grading system)	ECTS grade (A,B,C,D)

Programme

	Dates	**Programme**
Virtual part	07/01/2025-09/01/2025 21/01/2025-23/01/2025	Lectures - common materials and conventional production technologies - philosophies of low environmental impact innovative materials - digital production technologies - additive processes Virtual visits to laboratories and points of interest at universities, research centers, and companies. Group interaction Oral presentations
Physical part	13/01/2025 - 17/01/2025	Roundtables Numerical analysis Visits to manufacturing companies

Practical information

The physical mobility will take place at...	**Engineering School of Cádiz, Puerto Real** Escuela Superior de Ingeniería Av. Universidad de Cádiz, 10, 11519 Puerto Real, Cádiz **https://maps.app.goo.gl/5tSxFe6xD5BKtJ5u6**
Useful information	The University of Cadiz will provide breakfast & lunch.