



2023 Master internship at University of Cádiz

TITLE Tribological study of AM materials

LAB & PEOPLE

- Name of the hosting lab: Department of Mechanical Engineering and Industrial Design. Research group: Engineering and Technology of materials and Manufacturing.
- General activities of the lab: Machining, Additive manufacturing, Metrology, Tribology, System Engineering.
- Website: <https://tep027.uca.es/>
- Number of staff / PhD: 17 / 1
- Supervisor name and contact: Irene Del Sol Illana / Irene.delsol@uca.es

TOPIC OF THE INTERNSHIP

- Scientific context of the internship

This internship is part of a research line of the Engineering and Technology of materials and Manufacturing research group. This group have a long experience in manufacturing processes and analysis as well as tribological characterization of light alloys and additive manufacturing materials.

In particular additive manufacturing materials usually present different behaviors compared to casting or forging materials. These differences also apply to tribological behavior, which is not completely characterized.

During this internship the student will learn about material characterization in the tribological field. The student will develop a methodology to perform tribological tests and wear characterization. Results will be analyzed using data analysis techniques and critical thinking. Finally, the work developed will be presented to the tutor in an oral presentation to improve communication skills.

Keywords

Tribology, additive manufacturing, wear, reciprocating tests, materials

Bibliography

- Tasks and duties entrusted to the student:

Sample preparation for tests. Cleaning and polishing processes.

Performance of Tribological test, reciprocating or pin on disk tests.

Analysis of the wear behavior of Additive Manufacturing materials. Wear measurement and characterization.

Results presentation.

- Skills to be acquired or developed:

Research

Document and data management and analysis

Collaboration

Critical thinking

Oral communication

PROFILE OF THE DESIRED STUDENT

- Minimum level of study required: second year bachelor

- Field(s) of study: mechanical/chemistry/aerospace/design engineering, materials, chemistry

- Scientific skills: critical thinking, time management, communication.

- Language skills required: B2 of English or French. Written English mandatory.

THE INTERNSHIP ASSIGNMENT:

Desired duration of the internship (in months): 3 months

Desired Starting date of the mission: *1st September to 1st May.*

Indicative weekly schedule: *25h / week*

Remuneration ?

Erasmus grant: Erasmus grant should be asked to your own sending university

Internship agreement: *an internship agreement will be signed.*

To SEA-EU students:

*If you're interested please send your CV and letter of motivation to the scientist in charge,
irene.delsol@uca.es before the 31/03/2023.*