

Module-1: Introduction to cork science, cork cultivation, cork harvesting, cork processing

IO1 – Educational curriculum



Description

This module describes:

- the most important steps starting from the specificities of cork forest maintenance and cultivation
- the aspects of harvesting the material from the cork tree (techniques, timing)
- the many different steps that are necessary to transform the outer bark into a raw material to suitable develop engineering products.

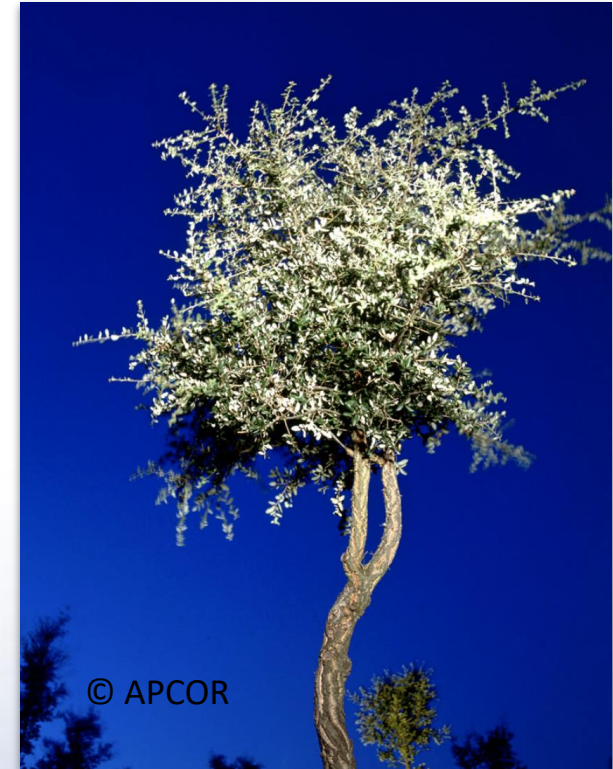
In this scope, the contribution of using cork-based raw materials on some of the UN Sustainable Development Goals (safer and inclusive cities, sustainable manufacturing, and others) will be addressed as well.



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1. Cork forest

- cultivation and maintenance challenges
- the different types of cork trees and forests
- planned cultivation to keep the material availability
- threats to cultivation (plagues, climate change, wildfires, etc)



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2. Cork extraction techniques and cares

- Tools, human qualification, the timing between harvestings, different types and quality of extracted cork.



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3. From the bark to raw materials

- Mechanical, thermal and microbial treatments
- Transformations
- Sub-types of raw materials



Target Groups

- Engineering students (Aerospace, Aeronautical, Materials and Mechanical Engineering).
- Engineers, technical staff and leaders in Aerospace and Aeronautical Industries.





Learning Objectives

- Understand the different stages of cork: cultivation, harvesting and processing
- To understand how its processing can influence the manufacturing of cork composites for the aerospace sector
- To understand how the processing of cork affects the manufacturing of cork composites
- The socio-economic impact of cork - from its cultivation to processing and the impact on UN 2030 agenda for sustainable development.



Learning Resources

- Scientific articles
- Audiovisual material
- Field trips
- Books and thesis



Self-assessment and Learning Activities

- Quizzes
- Oral presentations
- Cross-evaluations

