



Learning Module Outline

Short Description	
Description of the module	<p>Introduction to cork science, cork cultivation, cork harvesting, cork processing</p> <p>This module describes the most important steps starting from the specificities of cork forest maintenance and cultivation, followed by all aspects of harvesting the material from the cork tree (techniques, timing) and finally, the many different steps that are necessary to transform the outer bark into a raw material to suitable develop engineering products.</p> <p>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.</p> <p>The Module is split into the following subtopics:</p> <ol style="list-style-type: none"> 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) 2. Cork extraction techniques and cares. Tools, human qualification, the timing between harvestings, different types and quality of extracted cork. 3. From the bark to raw materials. Mechanical, thermal and microbial treatments. Transformations. Sub-types of raw materials.

Target Groups	
Targets	<ul style="list-style-type: none"> ● Engineering students (Aerospace, Aeronautical, Materials and Mechanical Engineering) ● Engineers, technical staff and leaders in Aerospace and Aeronautical Industries

Learning Objectives	
Learning Objectives for this module	Upon completion of this module, attendants will be able to:



Co-funded by the Erasmus+ Programme of the European Union

"Funded by the Erasmus+ Programme of the European Union. However, European Commission and Turkish National Agency cannot be held responsible for any use which may be made of the information contained therein"



	<ul style="list-style-type: none"> ● 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	
Resources	<ul style="list-style-type: none"> ● Scientific Articles ● Audiovisual material ● Field trips ● Books and Thesis

Self-assessment and Learning Activities	
Self-assessment and Learning Activities to be created	<ul style="list-style-type: none"> ● Quizzes ● Oral presentations ● Cross-evaluations



Co-funded by the Erasmus+ Programme of the European Union

"Funded by the Erasmus+ Programme of the European Union. However, European Commission and Turkish National Agency cannot be held responsible for any use which may be made of the information contained therein"