



Learning Module Outline

Short Description	
Description of the module	<p>This module describes the basics of cork-based composites and the methods of how the composite material is manufactured. We will explain the selection of the most suitable cork material as a filler in the composite material and the structure of a three-layer composite material. As well as the usage of a cork-based composite material in unmanned aerial vehicles.</p> <p>The Module 4 is divided into two main units:</p> <ol style="list-style-type: none"> 1. Cork-based composites. <ol style="list-style-type: none"> 1.1. Three-layer sandwich composites with cork as a core review/types. 1.2. The most important properties and advantages as well as disadvantages of three-layer sandwich composites with cork filling for the aviation industry. 1.3. Areas of usage of three-layer sandwich composites with cork filling in the aviation industry and UAV. 2. Composite manufacturing methods. <ol style="list-style-type: none"> 2.1. Introduction of how composite materials are manufactured. 2.2. Methods of production of three-layer composite elements with cork core: <ol style="list-style-type: none"> 2.2.1. Construction of three-layer sandwich composite material with cork filler using bulk cork granule. 2.2.2. Construction of three-layer sandwich composite material with cork filler using sheets of cork material. <p>The first unit focuses on the cork based sandwich material. It will look closely at the types of material used as a filler, as well as their properties. Along with their advantages and disadvantages. Furthermore it will present the best properties of the cork based filler material that is best suited for usage in the composite material. And also the usage in UAVs. The second unit will explain the two main methods of how the composite is manufactured.</p>



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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	<p>Upon completion of this module, attendants will be able to:</p> <ul style="list-style-type: none"> ● Understand how cork-based composites are manufactured. ● What kind of cork material is best suited for composites. ● Cork-based composites usage in UAV.

Learning Resources	
Resources	<ul style="list-style-type: none"> ● UAV Laboratory; ● Construction laboratory; ● University Airfield Kyviškės; ● Scientific articles.

Self-assessment and Learning Activities	
Self-assessment and Learning Activities to be created	<ul style="list-style-type: none"> ● Practice questions; ● Quiz; ● Module summary; ● Lamination of sandwich cork plates; ● Testing and flying UAV in the airfield; ● Book.



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