




## Academic discipline

# Advanced Materials for Aerospace Applications

**Specialities:** 131 Applied Mechanics; 133 Industrial Machinery Engineering; 134 Aerospace Engineering; 141 Power Engineering, Electrical Engineering and Mechanics; 142 Power Engineering; 274 Automobile Transport

Level of higher education	First (Bachelor)
Discipline status	alternative
Scope of the discipline	150 hours/ 5 ECTS credits
The language of discipline	English
What will be studied (subject of study)	<p>The course "<b>Advanced Materials for Aerospace Applications</b>" is recommended for those who want to improve their knowledge in the designing, manufacturing, testing and operation of Aerospace Engineering, Mechanical engineering and Electrical engineering.</p> <p>The main issues that will be considered within the framework of this course:</p> <ul style="list-style-type: none"> <li>– peculiarities of designing composite structures in engineering;</li> <li>– the main design schemes and methods of designing composite structures;</li> <li>– the manufacturing techniques of composite structures.</li> </ul>
Why is it interesting/should be studied (purpose)?	<p><b>The purpose of the study:</b> formation and expansion of the necessary knowledge in the field of design and production of composite structures in engineering among students.</p> <p><b>Task:</b> studying the basic designing methods and manufacturing techniques of composite structures.</p>
How can students use the acquired knowledge and skills (competencies)?	<p>As a result of studying the academic discipline, the student should <b>know</b>:</p> <ul style="list-style-type: none"> <li>– features of designing composite structures;</li> <li>– the basic methods of designing and calculating composite structures;</li> <li>– the manufacturing techniques of composite structures;</li> <li>– features of manufacturing composite structures.</li> </ul> <p><b>be able:</b></p> <ul style="list-style-type: none"> <li>– reasonably choose the calculation scheme and materials for the composite structure;</li> <li>– to make calculations of composite structures;</li> <li>– to choose technological processes and calculate their parameters for the manufacturing composite structures.</li> </ul>
Prerequisites	The study of the course "Advanced Materials for Aerospace Applications" is based on general knowledge of such disciplines as "Physics", "Chemistry", "Materials Science", "Mechanics of Materials and Structures" and special disciplines.
Co-requisites	This course is a base for studying courses related to special technical disciplines.
Organization of the education process	<p><b>Types of classes:</b> classroom lectures, practical classes, individual consultations (if necessary), and self-work of students based on materials published by the department.</p> <p><b>Forms of education:</b> full-time, online.</p> <p><b>Forms of control:</b> control of participation in lectures and performance of independent work tasks, the performance of practical work, the remote performance of test tasks, and final control in the form of exams.</p>
Department	403
Faculty	Faculty of Rocket and Space Engineering

<b>Lecturer</b>		Name	<b>Oleksii VAMBOL</b>
		Position	associate professor
		Academic status	associate professor
		Degree	Ph. D.
		e-mail	<a href="mailto:olexii.vambol@khai.edu">olexii.vambol@khai.edu</a>
<b>Links to electronic course materials</b>	<a href="https://mentor.khai.edu/">https://mentor.khai.edu/</a>		
<b>Link to the graduating program (syllabus)</b>			