




## Fundamentals of 3D Modelling

**Major «Technology of Aircraft Manufacturing Department»**

<b>Level of Higher Education</b>	<i>first (Bachelor)</i>
<b>Course Status</b>	<i>student's choice</i>
<b>Scope of discipline</b>	120 hours / 4 ECTS credits
<b>Language</b>	<i>Ukrainian / English</i>
<b>What will be studied (subject of study)</b>	<p>As a result of studying the discipline, students will be able to study and expand their knowledge when designing in SolidWorks CAD:</p> <ul style="list-style-type: none"> <li>- will be able to create drawings on several sheets for a part;</li> <li>- create sections, local and exploded views, as well as applying dimensions, positions, etc.;</li> <li>- apply dimensions in drawings to fully define the elements to be created, such as arrays and slots;</li> <li>- apply the basic functionality of sheet metal, namely flanges and bends; create a drawing of a sheet metal part;</li> <li>- use the formed parts from the Design Library for more efficient development of sheet metal parts;</li> <li>- to design a welded structure as a single part with the subsequent creation of a drawing;</li> <li>- design molds, create mounting bosses, cores and mold cavities;</li> <li>- will be able to master three methods of designing molds with multiple components.</li> </ul> <p>In general, the applicant for education will know the basic and additional material in the field of CAD, generate drawings from models with the addition of all the necessary information according to the standard. Will know the composition and use the tools for designing parts from sheet material, welded structures, casting molds. Will perform practical tasks of creating 3D models within a limited timeframe and will be able to justify the decisions and actions taken</p>
<b>Why is it interesting/should be studied (goal)</b>	<p>Purpose: obtaining knowledge about the basics of CAD, modern methods of modeling and designing objects using CAD / CAM / CAE systems.</p> <p>Assignment: training in modern methods of designing parts of technological equipment for the production of aviation and rocket and space technology using automated CAD / CAM / CAE / CALS systems</p>
<b>How can you use the acquired knowledge and skills (competencies)</b>	<p>Knowledge and understanding of the subject area and professional activities.</p> <p>Ability for abstract thinking, analysis and synthesis.</p> <p>Ability to evaluate and ensure the quality of work performed.</p> <p>Internal need for purposeful improvement of professional knowledge and skills throughout training and professional activities.</p> <p>The ability to set and solve problems of designing the parameters of products and their production processes;</p> <p>The ability to use appropriate software (programming languages, packages) to perform physical and mathematical calculations in the design and manufacture of aircraft.</p> <p>Develop technical and design documentation for the manufacture of the main elements of aerospace technology</p>
<b>Prerequisites</b>	
<b>Corequisite</b>	
<b>Organization of training</b>	<p>Types of classes: lectures, laboratory, practical, self-study</p> <p>Forms of education: full-time / part-time</p> <p>Forms of control: exam</p>
<b>Department</b>	Technology of Aircraft Manufacturing
<b>Faculty</b>	Aircraft Engineering

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<b>Links to course materials</b>	<p>1. SolidWorks Essentials. – Textbook. Dassault Systems SolidWorks Corporation, 300 Baker Avenue, Concord, Massachusetts 01742 USA, 2012. – 532 p.</p> <p>2. SolidWorks: Advanced part modeling. – Textbook. Dassault Systems SolidWorks Corporation, 300 Baker Avenue, Concord, Massachusetts 01742 USA, 2009. – 333 p.</p> <p>3. Student's Guide to Learning SolidWorks® Software – Textbook. Dassault Systèmes – SolidWorks Corporation 300, Baker Avenue Concord, Massachusetts 01742 USA, 2009. – 156 p.</p> <p>4. SolidWorks. Tutorials. Exercises. Junior and Senior Secondary Technical Education – Workbook. Dassault Systèmes – SolidWorks Corporation 300, Baker Avenue Concord, Massachusetts 01742 USA, 2009. – 50 p.</p> <p><a href="https://mentor.khai.edu/course/view.php?id=709">https://mentor.khai.edu/course/view.php?id=709</a></p>		
<b>Link to work program (syllabus)</b>			