Computer Aided Design of Technological Tooling

Major «*Technology of Aircraft Manufacturing Department*»

Level of Higher Education	*first (Bachelor)*
Course Status	*student's choice*
Scope of discipline	180 hours / 6 ECTS credits
Language	*Ukrainian / English*
What will be studied (subject of study)	As a result of studying the discipline, students will be able to study: - Problems of computerization of modern aircraft manufacturing. - Features of CAD in the conditions of a single, small-scale and large-scale production. - Will be able to analyze and evaluate the manufacturability of parts using a system for automating the design of technological processes. - Designing technological processes for manufacturing parts. *Design dies* in CAD system: - Use a CAD system to create a drawing of a part, design packages, blocks, punches, stopper systems, clamping; import ready drawings. - Carry out the main stages of design. - Use libraries of standard structural elements. - Calculate the tool dimensions and obtain drawings and partlists. - Finalize the drawing; use the part drawing to refine assembly drawings. *Design machine jigs*: - To carry out the choice of technological equipment and technological tool. - Ensure the accuracy of jigs, calculate the accuracy. - To control the parts in the production process. - Know the features of the design of machine tools in modern production conditions. - Consider the design features of tooling for high-speed machining on CNC machines, features of cutting tools for high-speed machining. - Be understood on CAM-systems for mechanical and high-speed processing.
Why is it interesting/should be studied (goal)	Purpose: students acquire the skills of designing and technological preparation for the production of elements of aircraft structures using three-dimensional computer-aided design systems. Objective: to study the theoretical foundations of automated product design and equipping aerospace equipment and practical skills in modeling aircraft structures in the CAD system
How can you use the acquired knowledge and skills (competencies)	Knowledge and understanding of the subject area and understanding of professional activity. Ability to evaluate and ensure the quality of work performed. The ability to supply and solve problems of designing the parameters of products and processes for their production; Ability to use the appropriate software (programming languages, packages) to perform physical and mathematical calculations in the design and manufacture of aircraft. Ability to develop standard technological actions for the production of parts of aviation and rocket and space technology. Develop technical and design documentation for the manufacture of the main elements of aerospace technology
Prerequisites	
Corequisite	

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<tr><td>Organization of training</td><td colspan="3">Types of classes: lectures, practical, self-study
Forms of education: full-time / part-time
Forms of control: exam</td></tr>
<tr><td>Department</td><td colspan="3">Technology of Aircraft Manufacturing</td></tr>
<tr><td>Faculty</td><td colspan="3">Aircraft Engineering</td></tr>
<tr><td>Teacher</td><td>  </td><td><table>
<tr><td>Name</td><td>Oleksiy Pavlenko</td></tr>
<tr><td>Position</td><td>Senior Lecturer</td></tr>
<tr><td>Academic title</td><td></td></tr>
<tr><td>Scientific degree</td><td>PhD</td></tr>
<tr><td>e-mail</td><td>alexey.pavlenko@khai.edu</td></tr>
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<tr><td>Links to course materials</td><td colspan="3">Мірошник М.А. Системи автоматизації проектування пристроїв і систем автоматики. Основи систем автоматизації проектування: Конспект лекцій. – Харків: УкрДАЗТ, 2014. – 102 с
Трегуб В.Г. Проектування систем автоматизації. Навч. пос. – К.: Вид-во Ліра, 2014. – 344 с.
Hoffman, E. Jig and Fixture Design, Fifth Edition. Delmar, Cengage Learning, NY 12065 USA (2004). – 369 p.
Joshi, P. Jigs and Fixtures. Design Manual, Second Edition. The McGraw-Hill Company (2004). – 237 p.
https://mentor.khai.edu/course/</td></tr>
<tr><td>Link to work program (syllabus)</td><td colspan="3"></td></tr>
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