



Computer Aided Design of Technological Tooling

Major «*Technology of Aircraft Manufacturing Department*»

Level of Higher Education	<i>first (Bachelor)</i>
Course Status	<i>student's choice</i>
Scope of discipline	180 hours / 6 ECTS credits
Language	<i>Ukrainian / English</i>
What will be studied (subject of study)	<p>As a result of studying the discipline, students will be able to study:</p> <ul style="list-style-type: none"> - 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. <p><i>Design dies in CAD system:</i></p> <ul style="list-style-type: none"> - 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. <p><i>Design machine jigs:</i></p> <ul style="list-style-type: none"> - 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)	<p>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.</p> <p>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</p>
How can you use the acquired knowledge and skills (competencies)	<p>Knowledge and understanding of the subject area and understanding of professional activity.</p> <p>Ability to evaluate and ensure the quality of work performed.</p> <p>The ability to supply and solve problems of designing the parameters of products and processes for their production;</p> <p>Ability to use the appropriate software (programming languages, packages) to perform physical and mathematical calculations in the design and manufacture of aircraft.</p> <p>Ability to develop standard technological actions for the production of parts of aviation and rocket and space technology.</p> <p>Develop technical and design documentation for the manufacture of the main elements of aerospace technology</p>
Prerequisites	
Corequisite	

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