

TITLE OF THE COURSE	Code
Design principles and technologies of telecommunications (CAD/CAM/CAE designing for electrical engineering and electronics module)	

Teacher(s)	Department
Coordinating: Alexander M Plotnikov	Software Tools

Study cycle	Level of the course	Type of the course
First cycle	MsC	total

Form of delivery	Duration	Language(s)
Full-time	1 term (3 year 2 semester)	Rus

Prerequisites	
Prerequisites: bachelor's degree	Co-requisites (if necessary):

Credits of the course	Total student workload	Contact hours	Individual work hours
	22	12	10

Aim of the course: competences foreseen by the study programme		
<p>The aim of educational course Design principles and technologies of telecommunications (CAD/CAM/CAE designing for electrical engineering and electronics module) is to advise students with main modern CAD-systems for design and development of radio electronic systems new generation. The course allows students to learn and practical work in well-known modern CADs, such as CREO ProEngineer, Altium Designer, AWR Design Environment, Antenna Magus and other widely used for design in the telecommunications' area.</p>		
Learning outcomes of course (course unit)	Teaching/learning methods	Assessment methods
Students will demonstrate in-depth knowledge in understanding the design principles and known technologies of radio systems, such as: wire multichannel systems and wireless systems (including RF modules and antennas)	practical works	test, practical reports
Students will demonstrate the ability to use modern CAD-environments for automatic design	practical works	test, practical reports
Students will be able to solve effectively the tasks of analysis and syntheses of electronic devices	practical works	test, applied task
Students will be able to develop new methods to optimizing modern CADs for automatic design of electronic devices (such as new circuit and antennas analyzing&synteizing methods)	practical works	test, applied task

Themes	Contact work hours						Time and tasks for individual work		
	Lectures	Consultation	Seminars	Practical work	Laboratory work	Placements	Total contact work	Individual work	Tasks
Module CAD/CAM/CAE designing for electrical engineering and electronics				18			18		
1.1. CREO ProEngineer environment				4			4		working with CADs
1.2. Altium Designer environment				4			4		
1.3. Practical tasks and examples				10			10		Working on individual tasks and preparing reports
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Assessment strategy	Weight in %	Deadlines	Assessment criteria
Products and performance assessments	50		All practical works should be passed
Written and Oral Test	50		Pass a test– excellent, confident delivery, good, thoughts and ideas clearly expressed, well-placed, delivery is fluctuate, practical tasks – full done. Fail a test – poor, delivery is fluctuate, practical tasks done with mistakes.

Author	Year of issue	Title	No of periodical or volume	Place of printing, Printing house or internet link
Compulsory literature				
Toogood, R.	2009	Pro/Engineer Wildfire 5.0 Advanced Tutorial		SDC Publications
Surhone L.M., Tennoe M.T., Henssonow S.F.	2010	Altium Designer: Electronic Design Automation		Betascript Publishing
Additional literature				
Автор перевода: Алексеев К.	2002	ProEngineer 2001: Базовый курс		Электронная книга Part 1: http://caddoc.narod.ru/Base_cours_p1.zip Part 2: http://caddoc.narod.ru/Base_cours_p2.zip
Автор перевода: Алексеев К.	2002	ProEngineer 2001: Углубленный курс		Электронная книга Part 1: http://caddoc.narod.ru/adv_cours_p1.zip Part 2: http://caddoc.narod.ru/adv_cours_p2.zip Part 3: http://caddoc.narod.ru/adv_cours_p3.zip
Сабунин А.Е.	2009	Altium Designer. Новые решения в проектировании электронных устройств		М.: Солон-Пресс