

**KNRTU-KAI, Kazan, RUSSIA**  
**DESCRIPTION OF THE PROMENG Curricula/Module**

TITLE OF THE MODULE Название модуля	Code
Theory of Electromagnetic Compatibility Radioelectronic Devices and Systems	<b>M.2.Б.2</b>

Teacher(s) Учитель (я)	Department отдел
<b>Coordinating:</b> Prof. Yuriy E. Sedelnikov <b>Others:</b> Dr. Denis A. Vedenkin	Radioelectronic and Telecommunication Systems

Study cycle Цикл обучения	Level of the module Уровень модуля	Type of the module Тип модуля
Second semester	Master	Compulsory

Form of delivery Форма внедрения	Duration Продолжительность	Langage(s) Язык
Lectures and practice	18 weeks	Russian

Prerequisites Необходимые условия	
<b>Prerequisites:</b> Not	<b>Co-requisites (if necessary):</b> Not

Credits of the module Кредиты модуля	Total student workload Общая учебная нагрузка студентов	Contact hours Контактные часы обучения (аудиторные)	Individual work hours Объем часов индивидуальной (самостоятельной) работы
4	144	60	84

Aim of the module (course unit): competences foreseen by the study programme Цель развития модуля (блок курса): компетенции предусмотренные учебной программой		
<p>The purpose of this course is to acquire knowledge and skills for the analysis of the electromagnetic environment, the choice of noise suppression devices, equipment testing for immunity, the application of knowledge in practice. To be able to a level that allows them to freely assess the electromagnetic environment during operation of electrical installations, taking design and technical solutions for limiting electromagnetic interference from radioelectronic devices</p>		
Learning outcomes of module (course unit) Результаты обучения модуля (блока курса)	Teaching/learning methods Методы преподавания/ обучения	Assessment methods Методы оценки
The student must be prepared to design activity, calculation, analysis and design features, objects, and systems using modern automation project design, to research activities, including interdisciplinary fields related to mathematical modeling of processes in radio systems and facilities for the pilot study and the analysis of their results.	Auditorium	Exam

Themes	Contact work hours							Time and tasks for individual work	
	Lectures	Consultations	Seminars	Practical work	Laboratory work	Placements	Total contact work	Individual work	Tasks
Темы	Лекции	Консультации	Семинары	Практические работы	Лабораторные работы	Место размещения	Общий объем ауд. работ	Самостоятельная работа	Достижимые цели (задачи)
The problem of EMC electronic means, a brief historical sketch of the concept of radio frequency resources, electromagnetic interference and radio transmissions, spurious radio transmitters, band emissions, noise emissions, the parameters of unwanted emissions of transmitters	2	12		6				28	Knowledge of the history of EMC, the concepts of radio frequency resources, and various types of interference and noise parameter of unintended effects of the transmitter to the receivers
Industrial noise, the concept of industrial noise, the sources of continuous noise sources broadband noise, intermittent noise, contact noise, interference, not related to the direct use of electromagnetic energy source of noise, quantity of industrial interference	2	12		6				28	Familiarity with the concept of industrial noise, noise types and characteristics of their effects, the ability to calculate the parameters that impact
Pathways of unintentional electromagnetic emission and reception antennas, radio equipment, antennas, the coupling coefficient, the frequency dependence of the transmission feeders	2	12		6				28	Familiarity with the concept of unintentional electromagnetic interference, the classification of unintentional electromagnetic interference assessment of the impact the gain of transmit and receive antennas, bandwidth and attenuation in the feeder
<b>Total</b>	<b>6</b>	<b>36</b>		<b>18</b>				<b>84</b>	

Assessment strategy Оценка стратегии	Weight in % Доля в %	Deadlines Сроки	Assessment criteria Критерии оценки
Running control I	25	6 <sup>th</sup> week	Attendance, activity, study cases and scientific articles
Running control II	25	10 <sup>th</sup> week	Attendance, activity, study cases and scientific articles
Final exam	50	18 <sup>th</sup> week	Writing exam

Author Автор	Year of issue Год выпуска	Title Название	No. of periodical or volume № периодического издания или тома	Place of printing, Printing house or Intrenet-link Место издания. Издание на месте или ссылка в Интернет
<b>Compulsory literature</b> Обязательная литература				
Yuriy E. Sedelnikov	2006	Electromagnetic Compatibility Radioelectronic Means		ЗАО «Новое знание»
Oleg N. Maslov	2000	Electromagnetic Security Radioelectronic Means		Связь и бизнес
<b>Additional literature</b> Дополнительная литература				
Mikhail P. Bader	2002	Electromagnetic Compatibility		УМК МПС