

**ONLINE**

# SUMMER RESEARCH CAMP

in Optical Systems Design **2021**

## WHEN?

Self-preparation period: June 7 - 20, 2021

Supervised studies: June 28 - July 9, 2021

## ECTS?

Yes! 4 ECTS + ITMO Official Certificate

## FEES?

63,000 RUB (~ 700€)

## APPLICATION DEADLINE?

May 20, 2021

## APPLICATION DOCUMENTS?

- Copy of your valid passport
- CV
- forward to Ms. Ekaterina Rassolenko at [e.rassolenko@itmo.ru](mailto:e.rassolenko@itmo.ru)

## REQUIREMENTS?

- Background in the field
- English B1 and higher

## REQUIRED SOFTWARE?

- Zemax OpticStudio, Mathcad, Microsoft Office, Zoom



**SUMMER RESEARCH CAMP ONLINE****SCHEDULE****in Optical System Design 2021****June 28 - July 9, 2021**

<b>JUNE 28 MONDAY</b>	Design Process. Introduction to Zemax OS	<b>10:00 – 13:00</b>	Lecture
	Sequential and Non-Sequential Models in Zemax OS	<b>14:00 – 15:30</b>	
	Modeling Multi-Lens Systems	<b>15:30 – 17:00</b>	Practice
<b>JUNE 29 TUESDAY</b>	Types of Optical Systems	<b>10:00 – 11:30</b>	Lecture
	Design of Simple Two-Component Systems	<b>11:30 – 13:00</b>	
	Telescope Systems, Photo Lenses and Microscope Layout Design	<b>14:00 – 17:00</b>	Practice
<b>JUNE 30 WEDNESDAY</b>	Introduction to Aberration Theory. Aberration Types	<b>10:00 – 11:30</b>	Lecture
	Monochromatic and Chromatic Aberrations	<b>11:30 – 15:30</b>	
	Achromatic Doublets	<b>15:30 – 17:00</b>	Practice
<b>JULY 1 THURSDAY</b>	Image Quality Evaluation	<b>10:00 – 11:30</b>	Lecture
	Aberration Balance Evaluation	<b>11:30 – 13:00</b>	
	Using Macro to Facilitate Your Work Focal Length Calculation	<b>14:00 – 15:30</b> <b>15:30 – 17:00</b>	Practice
<b>JULY 2 FRIDAY</b>	Mathematical Basis of Automated Design and Optimization	<b>10:00 – 11:30</b>	Lecture
	Understanding the Relief of MF	<b>11:30 – 13:00</b>	Practice
	Optimization with Zemax OS	<b>14:00 – 17:00</b>	Practice
<b>JULY 5 MONDAY</b>	Synthesis, Analysis and Correction of Two-Mirror Systems	<b>10:00 – 13:00</b>	Lecture
	Synthesis, Analysis and Optimization of Laser Collimating Systems	<b>14:00 – 17:00</b>	Practice
<b>JULY 6 TUESDAY</b>	Sensitivity Analysis and Tolerancing: Theoretical Basis, Types of Errors	<b>10:00 – 13:00</b>	Lecture
	Elements of Mechanical Design in Optical Engineering	<b>14:00 – 16:00</b>	Lecture
	Q&A Session	<b>16:00 – 18:00</b>	Practice
<b>JULY 7 WEDNESDAY</b>	Special Optical Elements & Modeling in Zemax OS: Prisms	<b>10:00 – 13:00</b>	Lecture & Practice
	Special Optical Elements & Modeling in Zemax OS: Fibers	<b>14:00 – 17:00</b>	
<b>JULY 8 THURSDAY</b>	Telescope System Design and Presentation	<b>10:00 – 17:00</b>	Practice
<b>JULY 9 FRIDAY</b>	Project Presentation	<b>10:00 – 13:30</b>	Practice

All classes are scheduled according to Moscow time (GMT +3).