HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY

International
Master's program

PROTOTYPING FUTURE CITIES

National Research University
Higher School of Economics,
Moscow

2019-2021

shukhov lab

ABOUT

What will the city of the future be like? Which skills will professionals need to build a smart city? How will we operate at the intersection of technology innovation, urban design, business models, strategy and society? The international Master's program in Prototyping Future Cities provides an integrated education with a multidisciplinary approach in relation to the urban project, technology, and urban studies. This program takes a holistic approach to the expansion and regeneration of cities and is intended to create a new type of professional who can develop any kind of project in order to lead urban transformation. Led by international experts and Russian scholars who are creating the agenda for smart city development, this program will teach you to understand the city at all scales and solve urban problems using technology.

'Two-year master program 'Prototyping Future Cities' offers the opportunity to study the impact of information technologies on cities, based on the method 'learning by doing'. The master takes place in the Shukhov Lab, international laboratory for experimental urban design, located in the center of Moscow, with access to advanced digital manufacturing machines where students can develop prototypes. The master covers a wide range of subjects, including Big Data, Urban Projects, Mobility, Economy and Housing, enabling students to lead urban transformation, both from the private and public sectors. We wait for you.'

Vicente Guallart
academic supervisor of Master's program, former chief architect of Barcelona

PROGRAM INFORMATION

1 November, 2018
Application process starts

15 August, 2019
Application deadline for local students

31 July, 2019
Application deadline for international students

9 September, 2019
Program starts

Field of Study	Urban Studies and Development
Language of Instruction	English
Duration and Mode of Study	2 years, Full-time Program
Tuition Fee in 2019	450 000 RUB a year
Scholarship	Enrollees who apply before 14 April 2019 and receive more than 70 points for their application portfolio will be given a 20% discount on the tuition fee.

PROGRAM FACTS

The research and project agenda of the international Master's program in Prototyping Future Cities is developing along five key educational layers: City Project, Technology, Information, Management and Culture. The program, which consists of compulsory subjects, research activities, international workshops and internships, focuses on digital fabrication, big data, internet of things (IoT), urban design, social innovations and smart urban technologies. The program also focuses on the different scales of urban reality – objects, buildings and the city as a whole. The curriculum is formed in accordance with the modern requirements for training specialists in smart city development.

Learning by doing

The key learning principle of the program is learning by doing. In Shukhov Lab Laboratory for Experimental Urban Design students try new technology, prepare prototypes, investigate and analyze the city through data, and develop projects that come as a relevant response to the complex problems that affect modern cities.

International field trips

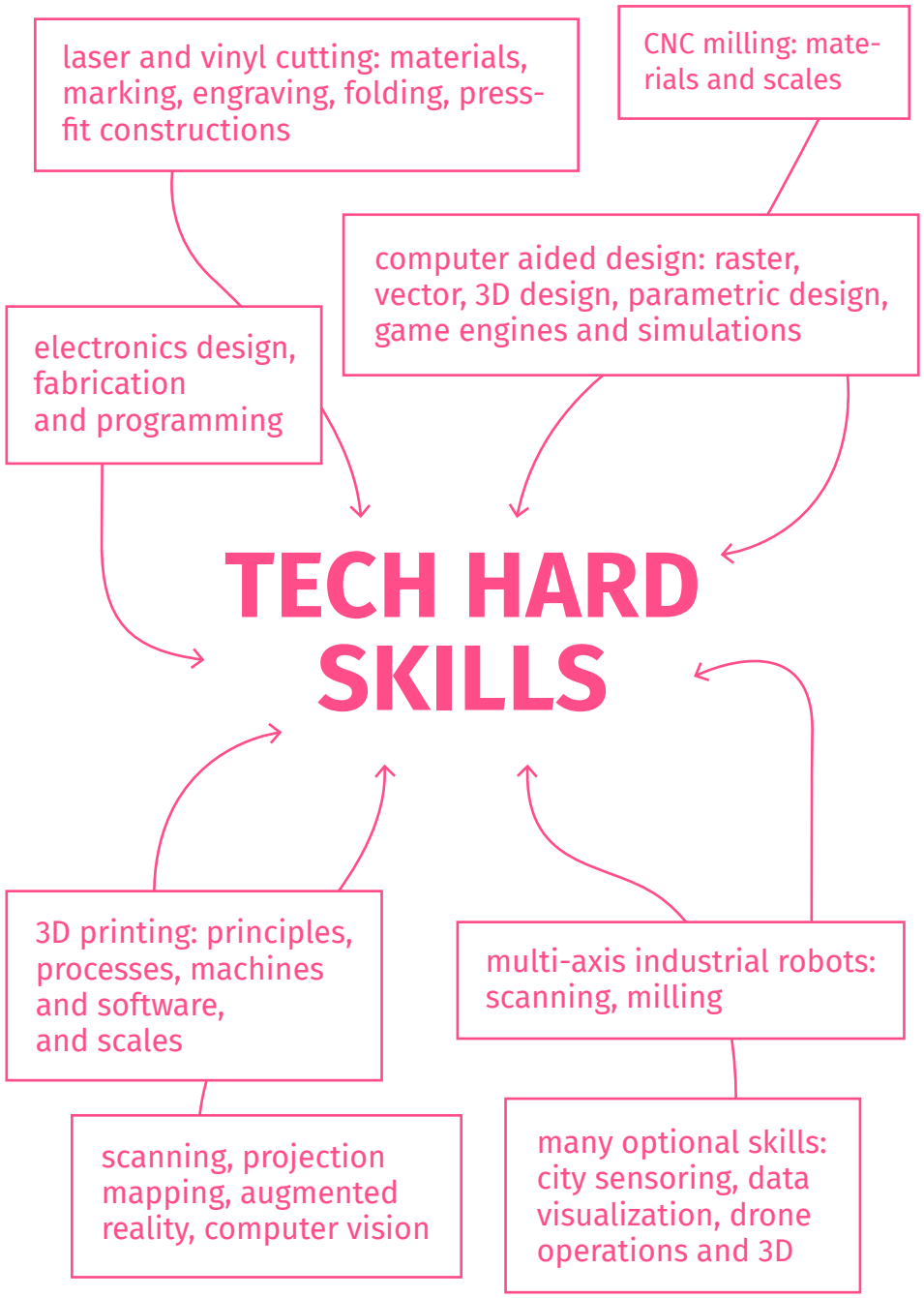
International field trips give young innovators the opportunity to learn about the most recent research and projects in smart city development, new technologies and self-sufficient building from the leading global experts.

Shukhov Lab

The Master's program in Prototyping Future Cities takes place in the Shukhov Lab at the Higher School of Economics in Moscow. The Shukhov Lab is one of the FAB LAB global network laboratories with a research and fabrication focus on experimental urban design. Fabrication of emerging prototypes is a key feature of the Master's program.
In the Shukhov Lab, students have full access to technological resources, such as 3D printers, laser cutters, and CNC machines. Here young innovators bring the most adventurous and boldest architectural and design ideas to life and work closely with leading experts on a daily basis.

What skills will I develop?

The Master's program curriculum and educational methods give students the ability to develop both hard and soft skills, which add value to their CV and prepare them for a successful career.


laser and vinyl cutting: materials, marking, engraving, folding, press-fit constructions
CNC milling: materials and scales
computer aided design: raster, vector, 3D design, parametric design, game engines and simulations
electronics design, fabrication and programming
TECH HARD SKILLS
3D printing: principles, processes, machines and software, and scales
multi-axis industrial robots: scanning, milling
scanning, projection mapping, augmented reality, computer vision
many optional skills: city sensoring, data visualization, drone operations and 3D


critical writing
public presentation
strategic thinking
hands-on
SOFT SKILLS
multitasking
adaptability
problem-solving
decision making

COURSES

1st year

Semester 1 (09-12)

Technology (Things@LAB)
Management (New Business Models)
Culture (Readings on Urbanity)
Information (Recording Sociology)
City project (Things)

Semester 2 (01-05)

Technology (Resources@LAB)
Management (Legal Regulations of Urban Development)
Culture (History of Urbanism)
Information (City Big Data)
City Project (Buildings)
Pre-Project
International Field Trip

2nd year

Semester 1 (09-12)

Technology (Communities@LAB)
Management (Impact analysis)
Culture (City Protocol)
Information (Mapping Economy)
City Project (Spatial Planning, Analysis and Urban Design)

Semester 2 (01-05)

Graduation Project
Internship
Examination
International Evaluation

TUTORS

Nadia Khort

General Manager, Shukhov Lab
Course: Readings on Urbanity

Alexander Ostrogorsky

Tutor and Curator, Public Program, MARCH
Course: History of Urbanism

Benito Juarez

President, FAB LAB Peru
Course: City Project: Things, Impact Analysis

Andrey Yelbaev

Project Leader, Strelka KB, Architect
Course: City Project: Things

Paulina Smykovskaya

Legal Counsel, Avito
Course: Legal Regulations

Egor Kotov

Research Fellow, Centre for Advanced Data Analysis, HSE Graduate School of Urbanism
Course: Mapping Economy

Alisa Barannikova

City Analyst, Tutor, Moscow Architecture School MARCH
Course: City Protocol

Andrey Karmatsky

CEO Urbica Design
Course: Urban Big Data

Andrei Ptitsyn

Deputy Director, Synesis
Course: New Business Models

Sofia Gavrilova

Photographer, Geographer, Curator
Course: Recording Sociology

Ivan Mitrofanov

Leading Expert, Shukhov Lab, Engineer
Course: Technology

Vadim Smakhtin

CTO, Partner at Habidatum, Software Engineer
Course: Research Seminar Technology

Alexandra Zapolskaya

Tutor, HSE Graduate School of Urbanism
Course: Readings on Urbanity

Elena Mitrofanova

Leading Expert, Shukhov Lab, Architect
Course: City Project

Guest Lecturers

Alexey Novikov
Habidatum

Daniel Ibanez
Margen-Lab

Carlo Ratti
MIT Senseable City Lab

Victor Attila Albert
HSE School of Political Science

Oscar Aceves
Architecture, Professor

Greg Lynn
UCLA School of the Arts and Architecture

Bruno Moser
Foster + Partners

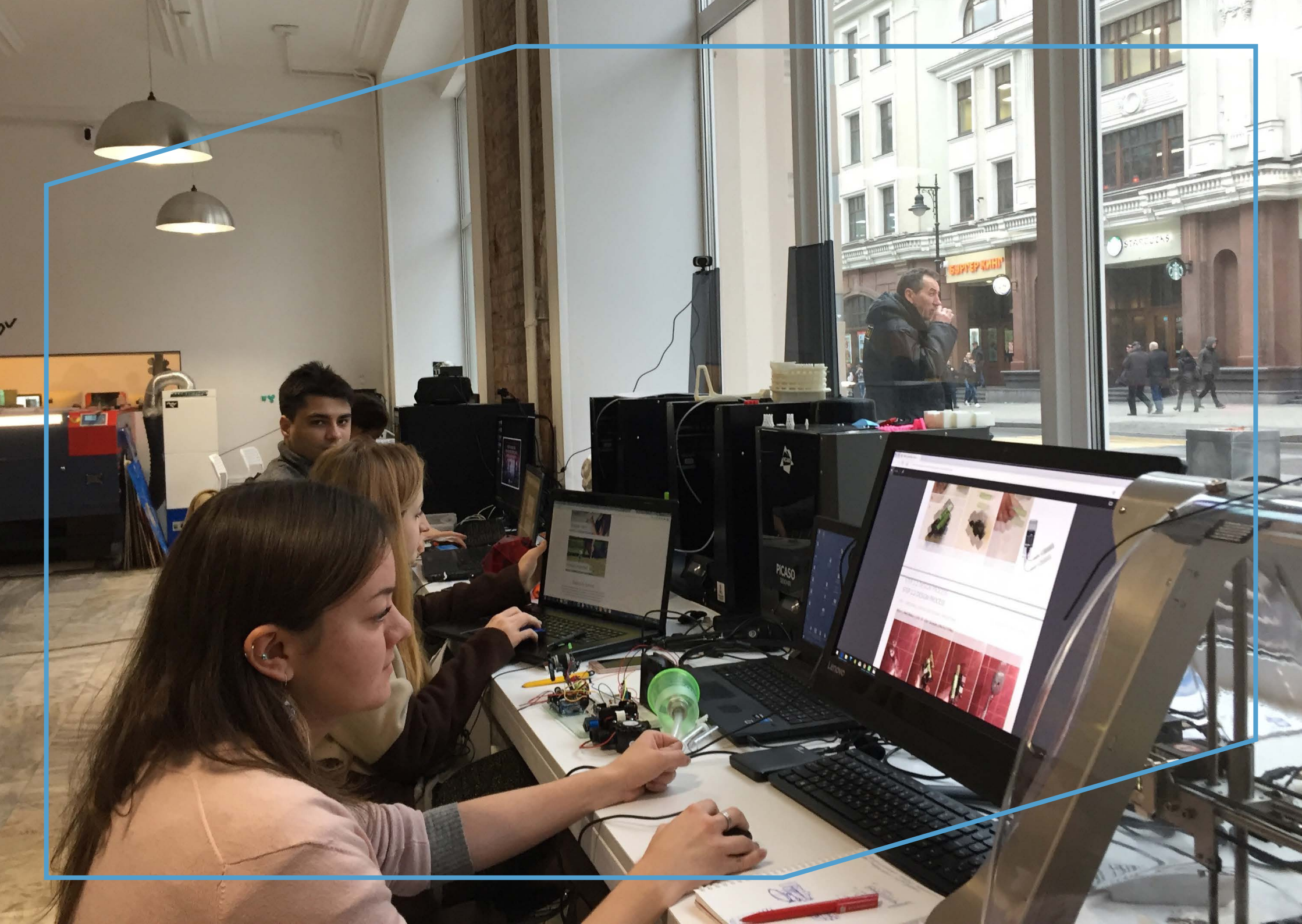
Thomas Ermacora
Fab Lab London

Jochen Schreer
Expert on Water Cycles, IAAC

Mitchell Joachim
New York University

Christian Fröhlich
HSE School of Sociology

John Mitchin
Green Fab Lab Barcelona


PICASO
Lenovo

HOW TO APPLY

Application link:

https://www.hse.ru/en/ma/techcity

What documents do I have to submit?

1.	Copy/scan of your valid passport
2.	Certified copy of your Bachelor's and/or Master's degree
3.	Certified copy of your Transcript of Records/list of grades
4.	Resume/Curriculum vitae
5.	Two letters of recommendation
6.	Motivation letter

Admission requirements and portfolio items:

1. Properly recognized diploma or certificate + transcript

If you have not yet received your Bachelor's diploma, please include an official copy of your most recent academic transcript.

0 - 20 points

2. Two letters of recommendation (in English)

A typical letter of recommendation should contain referee's: full name, position, workplace, academic degree, phone number, email.

0 - 10 points

3. Resume / CV (in English)

Please, submit a standard CV, which should include, at a minimum, your educational achievements, work and research experience, publications (if any), and language skills.

0 - 10 points

4. Motivation letter (in English)

This letter (1,5-3 pages) should describe your reasons for applying to this program, in the context of your long-term career goals and background.

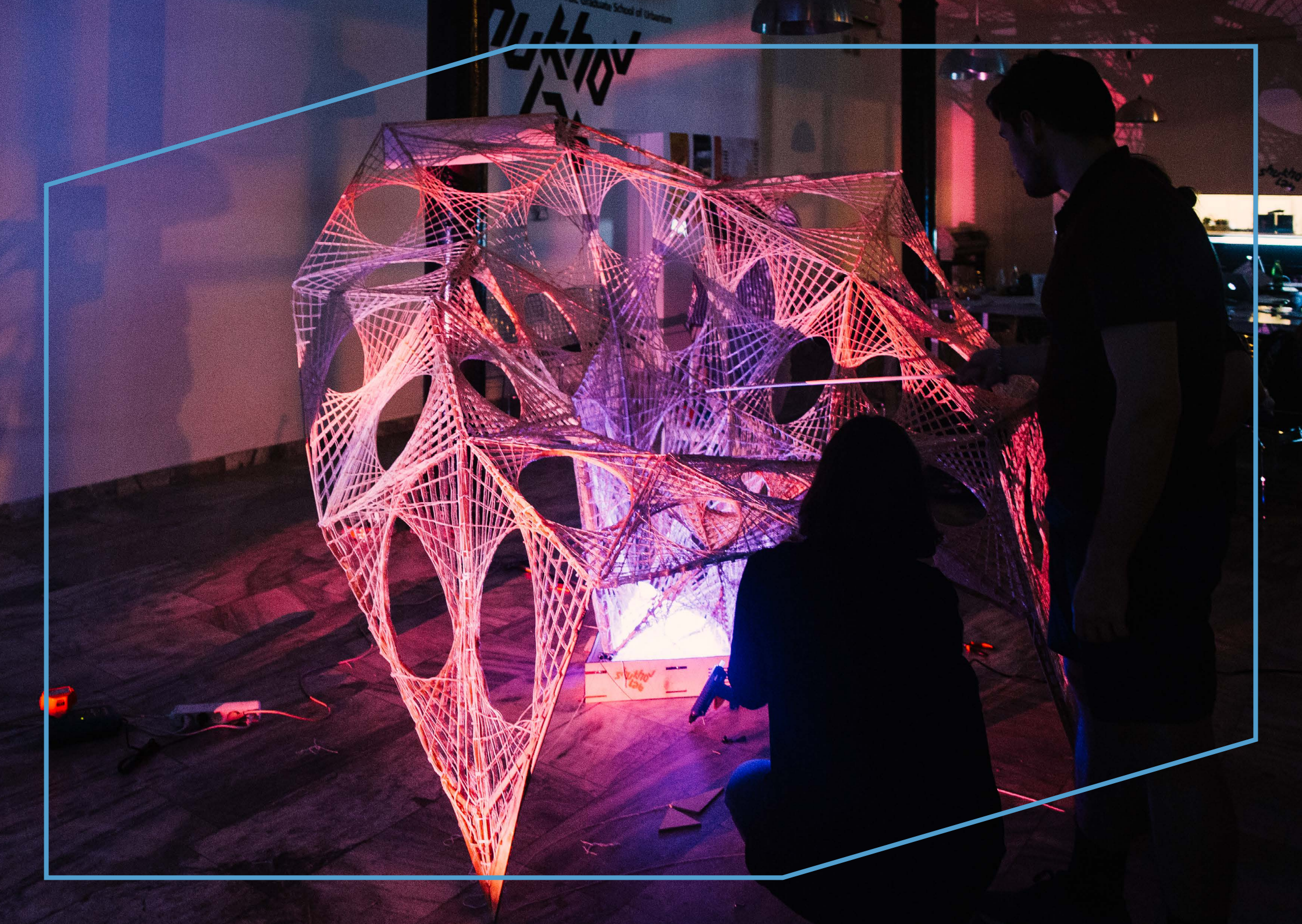
0 - 30 points

5. Interview (in English) with the program curator or/and program academic supervisor

Key criteria: erudition; critical literature review; spoken English; clarity of intent; interest in the topic; basic research and design skills.

0-30 points

All document should be prepared in English.



CONTACTS

www.hse.ru/en/ma/techcity

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