Hi, I'm going to help you with Applied Computational Mechanics, cohort 2026 curriculum!

You can find out your curriculum here ↗



Here's the content:

Basics of curriculum
Compulsory part
Elective part
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Case study

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These cases are based on the most frequently asked questions



Let’s start from the basics:

What you must do during 2 years of study?

- get the required number of ECTS credits for each Stream and 120 ECTS credits overall
- cover all compulsory elements under each stream
- prepare and defend your Thesis

1 ECTS credit = 27 astronomical hours



Skoltech curriculum plan has 5 Streams:

- Stream 1 (Science, Technology and Engineering (STE)) – 36 ECTS credits
- Stream 2 (Sector) – 12 ECTS credits
- Stream 3 (Entrepreneurship and Innovation (E&I)) – 12 ECTS credits
- Stream 4 (Research & MSc Thesis Project) – 36 ECTS credits
- Stream 5 (Options) – 24 ECTS credits

On top of 120 ECTS credits you may take Extracurricular activities – maximum 20 ECTS credits overall, maximum 10 ECTS credits per year.

Your load per term must be minimum 12 and maximum 18 ECTS credits. During one academic year your load should not exceed 60 ECTS credits + 10 ECTS credits for Extracurricular activities.

Let’s talk about the compulsory part

These are the educational elements that you must complete.

- **The list of these educational elements will not be changed during 2 years of studies!**
- **No need to register in Canvas for these courses. You will be registered by the Education Department.**

You have compulsory:

15 ECTS credits in Stream 1. Science, Technology and Engineering (STE)

Introduction to Computational Mechanics	3
Fundamentals of Fluid Mechanics	6
Introduction to Multiphase Flow	3
Data-driven Modelling and Analysis for Applied Dynamic Systems	3

12 ECTS credits in Stream 2. Sector

Industrial Immersion	12

6 ECTS credits in Stream 3. Entrepreneurship and Innovation (E&I)

Innovation Workshop	6

36 ECTS credits in Stream 4. Research & MSc Thesis Project

Early Research Project	6
Thesis Research Project	12
Thesis Proposal	3
Status Review	3
Predefense	3
Thesis Defense	9

3 ECTS credits in Stream 5. Options

Research Seminar in Computational Mechanics	9

Let’s discuss the elective part:



The list of the elective courses might be updated. So check Course Catalog ↗ before each registration and a Drop/Add period.

You have elective:

21 ECTS credits in Stream 1. Science, Technology and Engineering (STE)

Continuum Mechanics	6
Fundamentals of Solid Mechanics	3
Advanced Mathematical Modeling	3
Nonlinear Vibrations	3
Applied Multiphase Flow Modeling	3
Numerical Methods in Engineering and Applied Science	6
Numerical Methods for Conservation Laws	6
Computational Fluid Dynamics	6
Modeling with Open Source Software	3
Numerical Linear Algebra	6
Machine Learning	6
AI for Material Science, Engineering and Technologies	6
Technologies of Science-Informed Machine Learning	3

6 ECTS credits in Stream 3. Entrepreneurship and Innovation (E&I)

Entrepreneurship and Innovation Courses from Course Catalog	6

21 ECTS credits in Stream 5. Options

Foundations of Software Engineering for AI	3
High Performance Python Lab	3
Introduction to Linux and Supercomputers	6
Foundations of Multiscale Modeling: Kinetics	6
High Performance Computing and Modern Architectures	6
English Toolkit	3
Academic Writing Essentials	3
Nobel English for Academic Purposes	3
First Steps to Thesis in English	3
Master Your Thesis in English	3
Master Your Defense in English	3
Additional Thesis Research	
Short-Term Project	
Electives from Course Catalog	

How to pick an elective course wisely?

1. Read the course Syllabus which is available in Course Catalog. ↗
2. Keep in mind your workload per term. It must be between 12–18 ECTS credits.
3. Discuss the list of elective courses with your Research Advisor or Program Director.
4. Pay attention to the course prerequisites. They are indicated in your curriculum. These are courses which must be completed before you take a certain course.

MA030844	MA060570	Введение в механику многофазных течений	Introduction to Multiphase Flow	3

5. Check the course schedule, so the courses of your choice do not intersect.
6. Some courses you may plan for Year 1 or for Year 2. Number of ECTS credits under the specific Term means that this course is recommended to be taken this Term, "X" means that you can still take the course later.

Technologies of Science-Informed Machine Learning	3	X						3			

Pay Attention to: Term 1 registration



Term 1A (4 weeks in September) – you have a compulsory 6-credit "Innovation Workshop" course. No need to register. You will be registered by the Education Department.

Innovation Workshop	6	6	

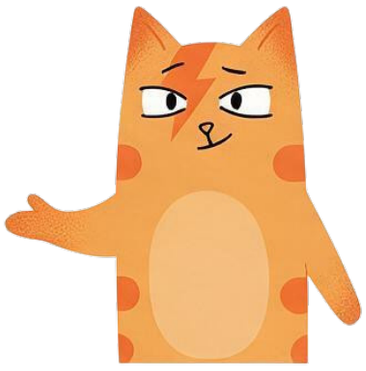
Term 1B (4 weeks in October) – you have two multi-term compulsory courses. No need to register. You will be registered by the Education Department.

Introduction to Computational Mechanics	3	1,5	1,5
Fundamentals of Fluid Mechanics	6	3	3

So, in Term 1 you will get 10,5 ECTS credits for attending compulsory courses. In order to get the required 12 ECTS credits for the term you must receive at least 1,5 ECTS credits in Term 1B by taking an elective course. You can choose an elective course and register for it. Keep in mind that your load per term can be maximum 18 ECTS credits. Registration timeline is here. ↗

Innovation Workshop

What should I do if I'm a foreign student and I arrive late for Innovation Workshop due to a valid reason?



In this case you must take the Innovation Workshop in the second year of studies.

What if I can't attend the Innovation Workshop?

Attendance is mandatory because it is a compulsory course. If you do not have a valid reason (e.g. medical report, visa issues) and you do not attend the IW, you will get an unsatisfactory grade.
In this case the Disciplinary Board will be involved.

Term 8

Term 8 is the final term of your educational program, so during it students are expected to work on their thesis only. For this reason make sure that all course workload is completed by the end of Term 7. In Term 8 you are allowed to take courses related to your thesis only.

Master Your Defense in English	3

Multi-term courses

How the workload is spread for a multi-term course?

The workload of a multi-term course is spread equally among the terms.



In “Options” stream compulsory part you have a 3-credit multi-term “Research Seminar in Computational Mechanics” course in Terms 2, 3 and 4. Your workload will be 1 ECTS credit for each Term. You may also take this course during the second year of studies.

Research Seminar in Computational Mechanics	3		1		1	1			X		X	X

When should I register for an elective multi-term course?

In order to get ECTS credits for a multi-term course you have to attend the course during all the terms as per curriculum plan!

You can register for an elective multi-term course only before the first term when the course starts. You can drop this course only during the drop/add period of the first term when the course starts.

Section

What are “Sections” made for in the Elective Part of STE? Can I take courses from different sections?

In the Elective Part of STE there are 3 sections: Mechanics, Numerical Methods and Data-driven Methods. Dividing courses into sections serves for navigation purposes only and aims to show that each group of courses is related to a particular topic. There’s no need for a student to stick to one section when choosing a course, so you can freely take courses from different sections.

Electives from Course Catalog

Can I take a course which is not in my curriculum plan?



Yes, you can take a course which is not in your curriculum plan via “Electives from Course Catalog” educational element which is located in Stream 5 “Options” and “Extracurricular activities”.
However, keep in mind the following when registering for a course which is not in the curriculum plan:

- Course instructor has the right to limit the range of programs, students of which he/she is ready to take on the course. Please check the course Syllabus before registering.
- Such a course can be allocated only in Stream 5 “Options” or “Extracurricular activities” (NOT in Stream 1. “Science, Technology and Engineering”).

Why does “Electives from Course Catalog” appear in “Options stream” and “Extracurricular activities”?

This is done intentionally so that you can take more courses from Course Catalog if you would like to. Some will count in “Options”, some in “Extracurricular activities”.

Why there is no total number of ECTS credits for the “Electives from Course Catalog”?

For Additional Thesis Research the load (i.e. the number of ECTS credits) must be approved by the Research Advisor



If there is no total number of ECTS credits for the educational element, it means that you can take as many ECTS credits as it’s allowed under the compulsory or elective part of the stream.

Course Title	з.е.*/ ECTS* credits	Четверть, 1 год / Term Year 1				
		1	2	✻	3	4
Electives from Course Catalog			X		X	X

Entrepreneurship and Innovation (E&I) courses from Course Catalog

Where can I find all Entrepreneurship and Innovation (E&I) courses?

You can find all E&I courses and their Syllabi in the Course Catalog ↗ on the website under the E&I filter.

Additional Thesis Research & Short-Term Project

What is the difference between "Additional Thesis Research" and "Short-Term Project" in terms of course content?



"Additional Thesis Research" is an additional research related to your Thesis, "Short-Term Project" is a research related to a project/research different from your Thesis. Please note that before taking these educational elements, you should discuss it with your Research Advisor.

Moving the course from one Stream to another

Can I move an elective course from Stream 1. Science, Technology and Engineering (STE) to Stream 5. Options?

Yes, you can easily do it. It might be relevant if you already have more credits in Stream 1 (STE) than it's needed.

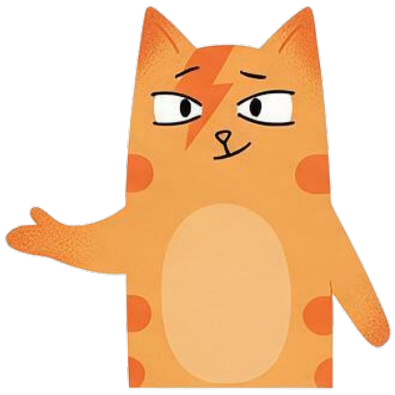
Can I move a course from Stream 5. Options to Stream 1. Science, Technology and Engineering (STE)?

No, you can not move a course from Stream 5. Options to Stream 1 (STE) but you can move such a course to "Extracurricular activities".

Please inform the Education Department which courses need to be moved.

Low grades

I received a low grade for the course and I do not want to show it in Transcript, is it possible?



It’s not possible. Your Transcript will reflect all grades for the courses you have taken.

Can I retake a course if I get a low grade?

You can retake only a compulsory course if you get an “F” grade. With any other grade no course can be retaken.

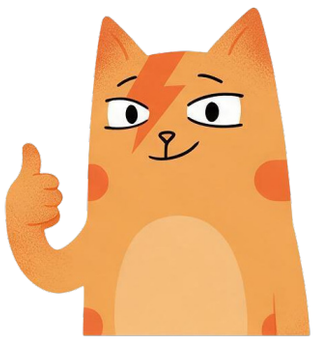
Course Schedule overlaps

I take two courses and the schedules of these courses overlap. What to do?

Please keep in mind that it is your responsibility to make sure you have no course overlaps. If the Education Department notices that there is an overlap in your schedule, the overlapping course will be dropped by the Education Department.

Free listener

Can I take a course in a free listener role?



Yes, you can but only with the course instructor's permission. If you get "ok" from the course instructor, please inform the Education Department about your case by sending an email to education@skoltech.ru, copy the course instructor. The Education Department will add you on a Canvas course page, so you have access to course materials. Keep in mind that the Course Instructor does not check the attendance, does not assess homework assignments, or other assignments for listeners.

ISP

What is ISP? Why does it have no credits in the curriculum plan?

Independent Study Period (ISP) is a special curriculum element, which lasts for 3 weeks in Winter Term (January) and consists of a variety of courses that help students to explore their interests beyond their main educational fields and make their academic learning truly interdisciplinary. Please note that ISP workload is counted in astronomical hours (not in ECTS credits). ISP is mandatory for MSc-1 students. They must get between 90 to 120 hours to get a “pass”. To find out more on ISP, please follow the presentation (ISP 2026).

Other questions

I have some other questions regarding my education at Skoltech, where should I go?

Here are some contacts:

- **Education Department office: E-R1-2064 (education@skoltech.ru)**
- **Program Director: Aslan Kasimov, Associate Professor (a.kasimov@skoltech.ru)**
- **Program Coordinator : Alena Samokhina (a.samokhina@skoltech.ru)**

