<table>
<thead>
<tr>
<th>Course Title (in English)</th>
<th>Research seminar &quot;Energy systems and technologies&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title (in Russian)</td>
<td>Научный семинар &quot;Энергетические системы и технологии&quot;</td>
</tr>
</tbody>
</table>
| Lead Instructor(s)       | Gryazina, Elena  
Ibanez, Federico Martin  
Ouerdane, Henni  
Pozo Camara, David  
Vorobiev, Petr |

**Status of this Syllabus**  
The syllabus is a work in progress (draft)

**Contact Person**  
Elena Gryazina

**Contact Person's E-mail**  
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1. Annotation

**Course Description**
This research seminar is the general meeting for faculty, researchers and master and PhD students of Energy Systems programs. The seminar takes place every week during Terms 2(6)-3(7)-4(8).

Master students must attend the seminar at least for one academic year but welcome to attend during two years.

PhD students are welcome to attend the seminar during all years of studies but can gain no more than 6 credits in total.

The seminar consists of faculty lectures, invited lectures of top scientists in their research field as well as students’ reports on their own or examined papers.

To PASS the course and gain 3 credits per academic year the student must fulfill all three requirements:

1. Attendance: > 2/3 of seminars.

2. Presentation. Depending on the status:
   a. For the 1st year masters: deep understanding of the given paper including reproduction of some numerical simulations
   b. For the 2nd year masters: literature review on the research topic including personal novel results (extended pre-defense format)
   c. For PhD: personal research results. PhD students may also provide additional questions to the feedback form and are encouraged to prepare online quiz on the topic.


The core of the self-study activity will be preparation to the talk that is comparable to project implementation (a significant part of many regular courses).

The students are expected to assign at the beginning of Term 2/6 and may drop the seminar till the beginning of Term 3/7 while credits are provided in Term 4/8.

### Course Prerequisites
No prerequisites

### 2. Structure and Content

#### Course Academic Level
Master-level course suitable for PhD students

#### Number of ECTS credits
3

<table>
<thead>
<tr>
<th>Topic</th>
<th>Summary of Topic</th>
<th>Lectures (# of hours)</th>
<th>Seminars (# of hours)</th>
<th>Labs (# of hours)</th>
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</thead>
<tbody>
<tr>
<td>Energy Systems</td>
<td>Recent achievements, novel problems and approaches for energy systems</td>
<td></td>
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</table>

### 3. Assignments

### 4. Grading

#### Type of Assessment
Pass/Fail

#### Grading Scale
5. Basic Information

- **Attendance Requirements**: Mandatory with Exceptions
- **Course Stream**: Science, Technology and Engineering (STE)
- **Course Delivery Frequency**: Every year

### Students of Which Programs do You Recommend to Consider this Course as an Elective?

<table>
<thead>
<tr>
<th>Masters Programs</th>
<th>PhD Programs</th>
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<tbody>
<tr>
<td>Energy Systems</td>
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</tbody>
</table>

- **Course Tags**: Math, Physics, Engineering

6. Textbooks and Internet Resources

7. Facilities

8. Learning Outcomes

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<table>
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<tr>
<th>Do you want to specify outcomes in another framework?</th>
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<tbody>
<tr>
<td>Knowledge-Skill-Experience is good enough</td>
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9. Assessment Criteria

10. Additional Notes